

SEQUENCE LISTING

<110> AVENTIS PHARMA S.A.

CNRS

INSERM

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<170> PatentIn version 3.1

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Gly Leu Thr Phe Leu Met Leu Gly Cys Ala Leu Glu Asp Tyr Gly Val
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Tyr Trp Pro Leu Phe Val Leu Ile Phe His Ala Ile Ser Pro Ile Pro
35 40 45

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His Phe Ile Ala Lys Arg Val Thr Tyr Asp Ser Asp Ala Thr Ser Ser
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Ala Cys Arg Glu Leu Ala Tyr Phe Phe Thr Thr Gly Ile Val Val Ser
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Ala Phe Gly Phe Pro Val Ile Leu Ala Arg Val Ala Val Ile Lys Trp
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 His Phe Ile Ala Lys Arg Val Thr Tyr Asp Ser Asp Ala Thr Ser Ser
 50 55 60
 Ala Cys Arg Glu Leu Ala Tyr Phe Phe Thr Thr Gly Ile Val Val Ser
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 Ala Phe Gly Phe Pro Val Ile Leu Ala Arg Val Ala Val Ile Lys Trp
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His Phe Ile Ala Lys Arg Val Thr Tyr Asp Ser Asp Ala Thr Ser Ser
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Ala Cys Arg Glu Leu Ala Tyr Phe Phe Thr Thr Gly Ile Val Val Ser
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Gly Ala Cys Gly Leu Val Leu Ala Gly Asn Ala Val Ile Phe Leu Thr
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Trp Trp Ala Arg Cys Lys Gln Met Asn Val Leu Asp Ser Phe Ile Asn
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35 40 45

His Phe Ile Ala Lys Arg Val Thr Tyr Asp Ser Asp Ala Thr Ser Ser
50 55 60

Ala Cys Arg Glu Leu Ala Tyr Phe Phe Thr Thr Gly Ile Val Val Ser
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Ala Phe Gly Phe Pro Val Ile Leu Ala Arg Val Ala Val Ile Lys Trp
85 90 95

Gly Ala Cys Gly Leu Val Leu Ala Gly Asn Ala Val Ile Phe Leu Thr
100 105 110

Ile Gln Gly Phe Phe Leu Ile Phe Gly Arg Gly Asp Asp Phe Ser Trp
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 Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe Lys Asp Asp
 225 230 235 240
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 245 250 255
 Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn
 260 265 270
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 275 280 285
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tca aca gta aat tct tta gtt ttt caa caa ata gat gca aac tgg aac Ser Thr Val Asn Ser Leu Val Phe Gln Gln Ile Asp Ala Asn Trp Asn 115 120 125	384
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cct cta atg tca gtt cag ccc ata aat atg gtg aag cct gat cca cca Pro Leu Met Ser Val Gln Pro Ile Asn Met Val Lys Pro Asp Pro Pro 225 230 235 240	720
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Trp Ser Ser Pro Pro Leu Val Pro Phe Pro Leu Gln Tyr Gln Val Lys	
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Tyr Ser Glu Asn Ser Thr Thr Val Ile Arg Glu Ala Asp Lys Ile Val	
275 280 285	
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Ser Ala Thr Ser Leu Leu Val Asp Ser Ile Leu Pro Gly Ser Ser Tyr	
290 295 300	
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Glu Val Gln Val Arg Gly Lys Arg Leu Asp Gly Pro Gly Ile Trp Ser	
305 310 315 320	
gac tgg agt act cct cgt gtc ttt acc aca caa gat gtc ata tac ttt	1008
Asp Trp Ser Thr Pro Arg Val Phe Thr Thr Gln Asp Val Ile Tyr Phe	
325 330 335	
cca cct aaa att ctg aca agt gtt ggg tct aat gtt tct ttt cac tgc	1056
Pro Pro Lys Ile Leu Thr Ser Val Gly Ser Asn Val Ser Phe His Cys	
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atc tat aag aag gaa aac aag att gtt ccc tca aaa gag att gtt tgg	1104
Ile Tyr Lys Lys Glu Asn Lys Ile Val Pro Ser Lys Glu Ile Val Trp	
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Trp Met Asn Leu Ala Glu Lys Ile Pro Gln Ser Gln Tyr Asp Val Val	
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Ser Asp His Val Ser Lys Val Thr Phe Phe Asn Leu Asn Glu Thr Lys	
385 390 395 400	
cct cga gga aag ttt acc tat gat gca gtg tac tgc tgc aat gaa cat	1248
Pro Arg Gly Lys Phe Thr Tyr Asp Ala Val Tyr Cys Cys Asn Glu His	
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gaa tgc cat cat cgc tat gct gaa tta tat gtg att gat gtc aat atc	1296
Glu Cys His His Arg Tyr Ala Glu Leu Tyr Val Ile Asp Val Asn Ile	
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Asn Ile Ser Cys Glu Thr Asp Gly Tyr Leu Thr Lys Met Thr Cys Arg	
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Trp Ser Thr Ser Thr Ile Gln Ser Leu Ala Glu Ser Thr Leu Gln Leu	
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Arg Tyr His Arg Ser Ser Leu Tyr Cys Ser Asp Ile Pro Ser Ile His	
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Pro Ile Ser Glu Pro Lys Asp Cys Tyr Leu Gln Ser Asp Gly Phe Tyr	
485 490 495	
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Glu Cys Ile Phe Gln Pro Ile Phe Leu Leu Ser Gly Tyr Thr Met Trp	
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att agg atc aat cac tct cta ggt tca ctt gac tct cca cca aca tgt	1584
Ile Arg Ile Asn His Ser Leu Gly Ser Leu Asp Ser Pro Pro Thr Cys	
515 520 525	
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Val	Leu	Pro	Asp	Ser	Val	Val	Lys	Pro	Leu	Pro	Pro	Ser	Ser	Val	Lys	
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Ala	Glu	Ile	Thr	Ile	Asn	Ile	Gly	Leu	Leu	Lys	Ile	Ser	Trp	Glu	Lys	
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Pro	Val	Phe	Pro	Glu	Asn	Asn	Leu	Gln	Phe	Gln	Ile	Arg	Tyr	Gly	Leu	
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agt	gga	aaa	gaa	gta	caa	tgg	aag	atg	tat	gag	ggt	tat	gat	gca	aaa	1776
Ser	Gly	Lys	Glu	Val	Gln	Trp	Lys	Met	Tyr	Glu	Val	Tyr	Asp	Ala	Lys	
			580					585					590			
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Ser	Lys	Ser	Val	Ser	Leu	Pro	Val	Pro	Asp	Leu	Cys	Ala	Val	Tyr	Ala	
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Val	Gln	Val	Arg	Cys	Lys	Arg	Leu	Asp	Gly	Leu	Gly	Tyr	Trp	Ser	Asn	
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Trp	Ser	Asn	Pro	Ala	Tyr	Thr	Val	Val	Met	Asp	Ile	Lys	Val	Pro	Met	
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Arg	Gly	Pro	Glu	Phe	Trp	Arg	Ile	Ile	Asn	Gly	Asp	Thr	Met	Lys	Lys	
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gag	aaa	aat	gtc	act	tta	ctt	tgg	aag	ccc	ctg	atg	aaa	aat	gac	tca	2016
Glu	Lys	Asn	Val	Thr	Leu	Leu	Trp	Lys	Pro	Leu	Met	Lys	Asn	Asp	Ser	
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Leu	Cys	Ser	Val	Gln	Arg	Tyr	Val	Ile	Asn	His	His	Thr	Ser	Cys	Asn	
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Gly	Thr	Trp	Ser	Glu	Asp	Val	Gly	Asn	His	Thr	Lys	Phe	Thr	Phe	Leu	
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Trp	Thr	Glu	Gln	Ala	His	Thr	Val	Thr	Val	Leu	Ala	Ile	Asn	Ser	Ile	
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ggt	gct	tct	gtt	gca	aat	ttt	aat	tta	acc	ttt	tca	tgg	cct	atg	agc	2208
Gly	Ala	Ser	Val	Ala	Asn	Phe	Asn	Leu	Thr	Phe	Ser	Trp	Pro	Met	Ser	
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aaa	gta	aat	atc	gtg	cag	tca	ctc	agt	gct	tat	cct	tta	aac	agc	agt	2256
Lys	Val	Asn	Ile	Val	Gln	Ser	Leu	Ser	Ala	Tyr	Pro	Leu	Asn	Ser	Ser	
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Cys	Val	Ile	Val	Ser	Trp	Ile	Leu	Ser	Pro	Ser	Asp	Tyr	Lys	Leu	Met	
		755					760					765				
tat	ttt	att	att	gag	tgg	aaa	aat	ctt	aat	gaa	gat	ggt	gaa	ata	aaa	2352
Tyr	Phe	Ile	Ile	Glu	Trp	Lys	Asn	Leu	Asn	Glu	Asp	Gly	Glu	Ile	Lys	
	770					775					780					
tgg	ctt	aga	atc	tct	tca	tct	gtt	aag	aag	tat	tat	atc	cat	gat	cat	2400
Trp	Leu	Arg	Ile	Ser	Ser	Ser	Val	Lys	Lys	Tyr	Tyr	Ile	His	Asp	His	
785					790					795					800	
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Phe	Ile	Pro	Ile	Glu	Lys	Tyr	Gln	Phe	Ser	Leu	Tyr	Pro	Ile	Phe	Met	
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gaa	gga	gtg	gga	aaa	cca	aag	ata	att	aat	agt	ttc	act	caa	gat	gat	2496
Glu	Gly	Val	Gly	Lys	Pro	Lys	Ile	Ile	Asn	Ser	Phe	Thr	Gln	Asp	Asp	
			820					825					830			
att	gaa	aaa	cac	cag	agt	gat	gca	ggg	tta	tat	gta	att	gtg	cca	gta	2544
Ile	Glu	Lys	His	Gln	Ser	Asp	Ala	Gly	Leu	Tyr	Val	Ile	Val	Pro	Val	
		835					840					845				
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Ile	Ile	Ser	Ser	Ser	Ile	Leu	Leu	Leu	Gly	Thr	Leu	Leu	Ile	Ser	His	
	850					855					860					
caa	aga	atg	aaa	aag	cta	ttt	tgg	gaa	gat	gtt	ccg	aac	ccc	aag	aat	2640
Gln	Arg	Met	Lys	Lys	Leu	Phe	Trp	Glu	Asp	Val	Pro	Asn	Pro	Lys	Asn	
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tgt	tcc	tgg	gca	caa	gga	ctt	aat	ttt	cag	aag	aga	acg	gac	att	ctt	2688
Cys	Ser	Trp	Ala	Gln	Gly	Leu	Asn	Phe	Gln	Lys	Arg	Thr	Asp	Ile	Leu	
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tga																2691

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Phe	Lys	Leu	Ser	Cys	Met	Pro	Pro	Asn	Ser	Thr	Tyr	Asp	Tyr	Phe	Leu
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Leu	Pro	Ala	Gly	Leu	Ser	Lys	Asn	Thr	Ser	Asn	Ser	Asn	Gly	His	Tyr
	50					55					60				
Glu	Thr	Ala	Val	Glu	Pro	Lys	Phe	Asn	Ser	Ser	Gly	Thr	His	Phe	Ser
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Asn	Leu	Ser	Lys	Thr	Thr	Phe	His	Cys	Cys	Phe	Arg	Ser	Glu	Gln	Asp
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Arg	Asn	Cys	Ser	Leu	Cys	Ala	Asp	Asn	Ile	Glu	Gly	Lys	Thr	Phe	Val
			100					105					110		
Ser	Thr	Val	Asn	Ser	Leu	Val	Phe	Gln	Gln	Ile	Asp	Ala	Asn	Trp	Asn
		115					120					125			

Ile Gln Cys Trp Leu Lys Gly Asp Leu Lys Leu Phe Ile Cys Tyr Val
 130 135 140

Glu Ser Leu Phe Lys Asn Leu Phe Arg Asn Tyr Asn Tyr Lys Val His
 145 150 155 160

Leu Leu Tyr Val Leu Pro Glu Val Leu Glu Asp Ser Pro Leu Val Pro
 165 170 175

Gln Lys Gly Ser Phe Gln Met Val His Cys Asn Cys Ser Val His Glu
 180 185 190

Cys Cys Glu Cys Leu Val Pro Val Pro Thr Ala Lys Leu Asn Asp Thr
 195 200 205

Leu Leu Met Cys Leu Lys Ile Thr Ser Gly Gly Val Ile Phe Gln Ser
 210 215 220

Pro Leu Met Ser Val Gln Pro Ile Asn Met Val Lys Pro Asp Pro Pro
 225 230 235 240

Leu Gly Leu His Met Glu Ile Thr Asp Asp Gly Asn Leu Lys Ile Ser
 245 250 255

Trp Ser Ser Pro Pro Leu Val Pro Phe Pro Leu Gln Tyr Gln Val Lys
 260 265 270

Tyr Ser Glu Asn Ser Thr Thr Val Ile Arg Glu Ala Asp Lys Ile Val
 275 280 285

Ser Ala Thr Ser Leu Leu Val Asp Ser Ile Leu Pro Gly Ser Ser Tyr
 290 295 300

Glu Val Gln Val Arg Gly Lys Arg Leu Asp Gly Pro Gly Ile Trp Ser
 305 310 315 320

Asp Trp Ser Thr Pro Arg Val Phe Thr Thr Gln Asp Val Ile Tyr Phe
 325 330 335

Pro Pro Lys Ile Leu Thr Ser Val Gly Ser Asn Val Ser Phe His Cys
 340 345 350

Ile Tyr Lys Lys Glu Asn Lys Ile Val Pro Ser Lys Glu Ile Val Trp
 355 360 365

Trp Met Asn Leu Ala Glu Lys Ile Pro Gln Ser Gln Tyr Asp Val Val
 370 375 380

Ser Asp His Val Ser Lys Val Thr Phe Phe Asn Leu Asn Glu Thr Lys
 385 390 395 400

Pro Arg Gly Lys Phe Thr Tyr Asp Ala Val Tyr Cys Cys Asn Glu His
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 Glu Cys His His Arg Tyr Ala Glu Leu Tyr Val Ile Asp Val Asn Ile
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 Asn Ile Ser Cys Glu Thr Asp Gly Tyr Leu Thr Lys Met Thr Cys Arg
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 Trp Ser Thr Ser Thr Ile Gln Ser Leu Ala Glu Ser Thr Leu Gln Leu
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 Arg Tyr His Arg Ser Ser Leu Tyr Cys Ser Asp Ile Pro Ser Ile His
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 Pro Ile Ser Glu Pro Lys Asp Cys Tyr Leu Gln Ser Asp Gly Phe Tyr
 485 490 495
 Glu Cys Ile Phe Gln Pro Ile Phe Leu Leu Ser Gly Tyr Thr Met Trp
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 Ile Arg Ile Asn His Ser Leu Gly Ser Leu Asp Ser Pro Pro Thr Cys
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 Val Leu Pro Asp Ser Val Val Lys Pro Leu Pro Pro Ser Ser Val Lys
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 Ala Glu Ile Thr Ile Asn Ile Gly Leu Leu Lys Ile Ser Trp Glu Lys
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 Pro Val Phe Pro Glu Asn Asn Leu Gln Phe Gln Ile Arg Tyr Gly Leu
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 Ser Gly Lys Glu Val Gln Trp Lys Met Tyr Glu Val Tyr Asp Ala Lys
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 Ser Lys Ser Val Ser Leu Pro Val Pro Asp Leu Cys Ala Val Tyr Ala
 595 600 605
 Val Gln Val Arg Cys Lys Arg Leu Asp Gly Leu Gly Tyr Trp Ser Asn
 610 615 620
 Trp Ser Asn Pro Ala Tyr Thr Val Val Met Asp Ile Lys Val Pro Met
 625 630 635 640
 Arg Gly Pro Glu Phe Trp Arg Ile Ile Asn Gly Asp Thr Met Lys Lys
 645 650 655
 Glu Lys Asn Val Thr Leu Leu Trp Lys Pro Leu Met Lys Asn Asp Ser
 660 665 670

Leu Cys Ser Val Gln Arg Tyr Val Ile Asn His His Thr Ser Cys Asn
 675 680 685
 Gly Thr Trp Ser Glu Asp Val Gly Asn His Thr Lys Phe Thr Phe Leu
 690 695 700
 Trp Thr Glu Gln Ala His Thr Val Thr Val Leu Ala Ile Asn Ser Ile
 705 710 715 720
 Gly Ala Ser Val Ala Asn Phe Asn Leu Thr Phe Ser Trp Pro Met Ser
 725 730 735
 Lys Val Asn Ile Val Gln Ser Leu Ser Ala Tyr Pro Leu Asn Ser Ser
 740 745 750
 Cys Val Ile Val Ser Trp Ile Leu Ser Pro Ser Asp Tyr Lys Leu Met
 755 760 765
 Tyr Phe Ile Ile Glu Trp Lys Asn Leu Asn Glu Asp Gly Glu Ile Lys
 770 775 780
 Trp Leu Arg Ile Ser Ser Ser Val Lys Lys Tyr Tyr Ile His Asp His
 785 790 795 800
 Phe Ile Pro Ile Glu Lys Tyr Gln Phe Ser Leu Tyr Pro Ile Phe Met
 805 810 815
 Glu Gly Val Gly Lys Pro Lys Ile Ile Asn Ser Phe Thr Gln Asp Asp
 820 825 830
 Ile Glu Lys His Gln Ser Asp Ala Gly Leu Tyr Val Ile Val Pro Val
 835 840 845
 Ile Ile Ser Ser Ser Ile Leu Leu Leu Gly Thr Leu Leu Ile Ser His
 850 855 860
 Gln Arg Met Lys Lys Leu Phe Trp Glu Asp Val Pro Asn Pro Lys Asn
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Leu Leu Met Leu Phe His Leu Gly Leu Gln Ala Ser Ile Ser Ala Arg		
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Gln Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Thr Arg Tyr Pro Ile		
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Thr Pro Trp Arg Phe Lys Leu Ser Cys Met Pro Pro Asn Ser Thr Tyr		
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Asp Tyr Phe Leu Leu Pro Ala Gly Leu Ser Lys Asn Thr Ser Asn Ser		
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Asn Gly His Tyr Glu Thr Ala Val Glu Pro Lys Phe Asn Ser Ser Gly		
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Thr His Phe Ser Asn Leu Ser Lys Thr Thr Phe His Cys Cys Phe Arg		
100 105 110		
agt gag caa gat aga aac tgc tcc tta tgt gca gac aac att gaa gga		384
Ser Glu Gln Asp Arg Asn Cys Ser Leu Cys Ala Asp Asn Ile Glu Gly		
115 120 125		
acg aca ttt gtt tca aca gta aat tct tta gtt ttt caa caa ata gat		432
Thr Thr Phe Val Ser Thr Val Asn Ser Leu Val Phe Gln Gln Ile Asp		
130 135 140		
gca aac tgg aac ata cag tgc tgg cta aaa gga gac tta aaa tta ttc		480
Ala Asn Trp Asn Ile Gln Cys Trp Leu Lys Gly Asp Leu Lys Leu Phe		
145 150 155 160		
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Ile Cys Tyr Val Glu Ser Leu Phe Lys Asn Leu Phe Arg Asn Tyr Asn		
165 170 175		
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Tyr	Lys	Val	His	Leu	Leu	Tyr	Val	Leu	Pro	Glu	Val	Leu	Glu	Asp	Ser		
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cct	ctg	gtt	ccc	caa	aaa	ggc	agt	ttt	cag	atg	gtt	cac	tgc	aat	tgc		624
Pro	Leu	Val	Pro	Gln	Lys	Gly	Ser	Phe	Gln	Met	Val	His	Cys	Asn	Cys		
		195					200					205					
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Ser	Val	His	Glu	Cys	Cys	Glu	Cys	Leu	Val	Pro	Val	Pro	Thr	Ala	Lys		
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Leu	Asn	Asp	Thr	Leu	Leu	Met	Cys	Leu	Lys	Ile	Thr	Ser	Gly	Gly	Val		
	225				230					235					240		
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Ile	Phe	Arg	Ser	Pro	Leu	Met	Ser	Val	Gln	Pro	Ile	Asn	Met	Val	Lys		
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cct	gat	cca	cca	tta	ggg	ttg	cat	atg	gaa	atc	aca	gat	gat	ggg	aat		816
Pro	Asp	Pro	Pro	Leu	Gly	Leu	His	Met	Glu	Ile	Thr	Asp	Asp	Gly	Asn		
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Leu	Lys	Ile	Ser	Trp	Ser	Ser	Pro	Pro	Leu	Val	Pro	Phe	Pro	Leu	Gln		
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Tyr	Gln	Val	Lys	Tyr	Ser	Glu	Asn	Ser	Thr	Thr	Val	Ile	Arg	Glu	Ala		
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gac	aag	att	gtc	tca	gct	aca	tcc	ctg	cta	gta	gac	agt	ata	ctt	cct		960
Asp	Lys	Ile	Val	Ser	Ala	Thr	Ser	Leu	Leu	Val	Asp	Ser	Ile	Leu	Pro		
	305				310					315					320		
ggg	tct	tcg	tat	gag	ggt	cag	gtg	agg	ggc	aag	aga	ctg	gat	ggc	cca		1008
Gly	Ser	Ser	Tyr	Glu	Val	Gln	Val	Arg	Gly	Lys	Arg	Leu	Asp	Gly	Pro		
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gga	atc	tgg	agt	gac	tgg	agt	act	cct	cgt	gtc	ttt	acc	aca	caa	gat		1056
Gly	Ile	Trp	Ser	Asp	Trp	Ser	Thr	Pro	Arg	Val	Phe	Thr	Thr	Gln	Asp		
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Val	Ile	Tyr	Phe	Pro	Pro	Lys	Ile	Leu	Thr	Ser	Val	Gly	Ser	Asn	Val		
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tct	ttt	cac	tgc	atc	tat	aag	aag	gaa	aac	aag	att	gtt	ccc	tca	aaa		1152
Ser	Phe	His	Cys	Ile	Tyr	Lys	Lys	Glu	Asn	Lys	Ile	Val	Pro	Ser	Lys		
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gag	att	gtt	tgg	tgg	atg	aat	tta	gct	gag	aaa	att	cct	caa	agc	cag		1200
Glu	Ile	Val	Trp	Trp	Met	Asn	Leu	Ala	Glu	Lys	Ile	Pro	Gln	Ser	Gln		
	385				390					395					400		
tat	gat	gtt	gtg	agt	gat	cat	gtt	agc	aaa	gtt	act	ttt	ttc	aat	ctg		1248
Tyr	Asp	Val	Val	Ser	Asp	His	Val	Ser	Lys	Val	Thr	Phe	Phe	Asn	Leu		
				405					410					415			
aat	gaa	acc	aaa	cct	cga	gga	aag	ttt	acc	tat	gat	gca	gtg	tac	tgc		1296
Asn	Glu	Thr	Lys	Pro	Arg	Gly	Lys	Phe	Thr	Tyr	Asp	Ala	Val	Tyr	Cys		
			420					425					430				
tgc	aat	gaa	cat	gaa	tgc	cat	cat	cgc	tat	gct	gaa	tta	tat	gtg	att		1344
Cys	Asn	Glu	His	Glu	Cys	His	His	Arg	Tyr	Ala	Glu	Leu	Tyr	Val	Ile		
		435					440					445					
gat	gtc	aat	atc	aat	atc	tca	tgt	gaa	act	gat	ggg	tac	tta	act	aaa		1392

Asp Val Asn Ile Asn Ile Ser Cys Glu Thr Asp Gly Tyr Leu Thr Lys 450 455 460	
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act ttg caa ttg agg tat cat agg agc agc ctt tac tgt tct gat att Thr Leu Gln Leu Arg Tyr His Arg Ser Ser Leu Tyr Cys Ser Asp Ile 485 490 495	1488
cca tct att cat ccc ata tct gag ccc aaa gat tgc tat ttg cag agt Pro Ser Ile His Pro Ile Ser Glu Pro Lys Asp Cys Tyr Leu Gln Ser 500 505 510	1536
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Trp Pro Met Ser Lys Val Asn Ile Val Gln Ser Leu Ser Ala Tyr Pro	
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Tyr Lys Leu Met Tyr Phe Ile Ile Glu Trp Lys Asn Leu Asn Glu Asp	
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Ile Val Pro Val Ile Ile Ser Ser Ser Ile Leu Leu Leu Gly Thr Leu	
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gcc agg tgc aag cag atg aac gtg ctg gac agc ttc atc aac tac tac	2880
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Asp Ser Glu Lys His Ala Glu Asn Ala Val Ile Phe Leu His Gly Asn	
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gcc gct agc agc tac ctg tgg agg cac gtg gtg ccc cac atc gag ccc	2976
Ala Ala Ser Ser Tyr Leu Trp Arg His Val Val Pro His Ile Glu Pro	
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Asp Tyr Phe Leu Leu Pro Ala Gly Leu Ser Lys Asn Thr Ser Asn Ser
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Asn Gly His Tyr Glu Thr Ala Val Glu Pro Lys Phe Asn Ser Ser Gly
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Ala Asn Trp Asn Ile Gln Cys Trp Leu Lys Gly Asp Leu Lys Leu Phe
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Ile Cys Tyr Val Glu Ser Leu Phe Lys Asn Leu Phe Arg Asn Tyr Asn
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Tyr Lys Val His Leu Leu Tyr Val Leu Pro Glu Val Leu Glu Asp Ser
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 Ser Val His Glu Cys Cys Glu Cys Leu Val Pro Val Pro Thr Ala Lys
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 Leu Asn Asp Thr Leu Leu Met Cys Leu Lys Ile Thr Ser Gly Gly Val
 225 230 235 240
 Ile Phe Arg Ser Pro Leu Met Ser Val Gln Pro Ile Asn Met Val Lys
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 260 265 270
 Leu Lys Ile Ser Trp Ser Ser Pro Pro Leu Val Pro Phe Pro Leu Gln
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 Tyr Gln Val Lys Tyr Ser Glu Asn Ser Thr Thr Val Ile Arg Glu Ala
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 Asp Lys Ile Val Ser Ala Thr Ser Leu Leu Val Asp Ser Ile Leu Pro
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 Gly Ser Ser Tyr Glu Val Gln Val Arg Gly Lys Arg Leu Asp Gly Pro
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 Cys Asn Glu His Glu Cys His His Arg Tyr Ala Glu Leu Tyr Val Ile
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 Asp Val Asn Ile Asn Ile Ser Cys Glu Thr Asp Gly Tyr Leu Thr Lys
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Met Thr Cys Arg Trp Ser Thr Ser Thr Ile Gln Ser Leu Ala Glu Ser
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 Asp Gly Phe Tyr Glu Cys Ile Phe Gln Pro Ile Phe Leu Leu Ser Gly
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Gln Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Thr Arg Tyr Pro Ile		
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Tyr	Asp	Val	Val	Ser 405	Asp	His	Val	Ser	Lys 410	Val	Thr	Phe	Phe	Asn 415	Leu	
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Cys	Asn	Glu	His	Glu	Cys	His	His	Arg	Tyr	Ala	Glu	Leu	Tyr	Val	Ile	
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Met	Thr	Cys	Arg	Trp	Ser	Thr	Ser	Thr	Ile	Gln	Ser	Leu	Ala	Glu	Ser	
	465				470					475					480	
act	ttg	caa	ttg	agg	tat	cat	agg	agc	agc	ctt	tac	tgt	tct	gat	att	1488
Thr	Leu	Gln	Leu	Arg	Tyr	His	Arg	Ser	Ser	Leu	Tyr	Cys	Ser	Asp	Ile	
				485				490						495		
cca	tct	att	cat	ccc	ata	tct	gag	ccc	aaa	gat	tgc	tat	ttg	cag	agt	1536
Pro	Ser	Ile	His	Pro	Ile	Ser	Glu	Pro	Lys	Asp	Cys	Tyr	Leu	Gln	Ser	
			500					505					510			
gat	ggt	ttt	tat	gaa	tgc	att	ttc	cag	cca	atc	ttc	cta	tta	tct	ggc	1584
Asp	Gly	Phe	Tyr	Glu	Cys	Ile	Phe	Gln	Pro	Ile	Phe	Leu	Leu	Ser	Gly	
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tac	aca	atg	tgg	att	agg	atc	aat	cac	tct	cta	ggt	tca	ctt	gac	tct	1632
Tyr	Thr	Met	Trp	Ile	Arg	Ile	Asn	His	Ser	Leu	Gly	Ser	Leu	Asp	Ser	
	530					535					540					
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Pro	Pro	Thr	Cys	Val	Leu	Pro	Asp	Ser	Val	Val	Lys	Pro	Leu	Pro	Pro	
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tcc	agt	gtg	aaa	gca	gaa	att	act	ata	aac	att	gga	tta	ttg	aaa	ata	1728
Ser	Ser	Val	Lys	Ala	Glu	Ile	Thr	Ile	Asn	Ile	Gly	Leu	Leu	Lys	Ile	
				565				570						575		
tct	tgg	gaa	aag	cca	gtc	ttt	cca	gag	aat	aac	ctt	caa	ttc	cag	att	1776
Ser	Trp	Glu	Lys	Pro	Val	Phe	Pro	Glu	Asn	Asn	Leu	Gln	Phe	Gln	Ile	
			580					585					590			
cgc	tat	ggt	tta	agt	gga	aaa	gaa	gta	caa	tgg	aag	atg	tat	gag	gtt	1824
Arg	Tyr	Gly	Leu	Ser	Gly	Lys	Glu	Val	Gln	Trp	Lys	Met	Tyr	Glu	Val	
		595					600					605				
tat	gat	gca	aaa	tca	aaa	tct	gtc	agt	ctc	cca	gtt	cca	gac	ttg	tgt	1872
Tyr	Asp	Ala	Lys	Ser	Lys	Ser	Val	Ser	Leu	Pro	Val	Pro	Asp	Leu	Cys	
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gca	gtc	tat	gct	gtt	cag	gtg	cgc	tgt	aag	agg	cta	gat	gga	ctg	gga	1920
Ala	Val	Tyr	Ala	Val	Gln	Val	Arg	Cys	Lys	Arg	Leu	Asp	Gly	Leu	Gly	
					630				635						640	
tat	tgg	agt	aat	tgg	agc	aat	cca	gcc	tac	aca	gtt	gtc	atg	gat	ata	1968
Tyr	Trp	Ser	Asn	Trp	Ser	Asn	Pro	Ala	Tyr	Thr	Val	Val	Met	Asp	Ile	
				645				650					655			
aaa	gtt	cct	atg	aga	gga	cct	gaa	ttt	tgg	aga	ata	att	aat	gga	gat	2016
Lys	Val	Pro	Met	Arg	Gly	Pro	Glu	Phe	Trp	Arg	Ile	Ile	Asn	Gly	Asp	
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act	atg	aaa	aag	gag	aaa	aat	gtc	act	tta	ctt	tgg	aag	ccc	ctg	atg	2064
Thr	Met	Lys	Lys	Glu	Lys	Asn	Val	Thr	Leu	Leu	Trp	Lys	Pro	Leu	Met	
		675					680					685				
aaa	aat	gac	tca	ttg	tgc	agt	gtt	cag	aga	tat	gtg	ata	aac	cat	cat	2112

Lys	Asn	Asp	Ser	Leu	Cys	Ser	Val	Gln	Arg	Tyr	Val	Ile	Asn	His	His	
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act	tcc	tgc	aat	gga	aca	tgg	tca	gaa	gat	gtg	gga	aat	cac	acg	aaa	2160
Thr	Ser	Cys	Asn	Gly	Thr	Trp	Ser	Glu	Asp	Val	Gly	Asn	His	Thr	Lys	
705				710						715					720	
ttc	act	ttc	ctg	tgg	aca	gag	caa	gca	cat	act	gtt	acg	gtt	ctg	gcc	2208
Phe	Thr	Phe	Leu	Trp	Thr	Glu	Gln	Ala	His	Thr	Val	Thr	Val	Leu	Ala	
				725					730					735		
atc	aat	tca	att	ggt	gct	tct	gtt	gca	aat	ttt	aat	tta	acc	ttt	tca	2256
Ile	Asn	Ser	Ile	Gly	Ala	Ser	Val	Ala	Asn	Phe	Asn	Leu	Thr	Phe	Ser	
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Trp	Pro	Met	Ser	Lys	Val	Asn	Ile	Val	Gln	Ser	Leu	Ser	Ala	Tyr	Pro	
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Leu	Asn	Ser	Ser	Cys	Val	Ile	Val	Ser	Trp	Ile	Leu	Ser	Pro	Ser	Asp	
	770					775					780					
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Gly	Glu	Ile	Lys	Trp	Leu	Arg	Ile	Ser	Ser	Ser	Val	Lys	Lys	Tyr	Tyr	
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Ile	His	Asp	His	Phe	Ile	Pro	Ile	Glu	Lys	Tyr	Gln	Phe	Ser	Leu	Tyr	
			820					825					830			
cca	ata	ttt	atg	gaa	gga	gtg	gga	aaa	cca	aag	ata	att	aat	agt	ttc	2544
Pro	Ile	Phe	Met	Glu	Gly	Val	Gly	Lys	Pro	Lys	Ile	Ile	Asn	Ser	Phe	
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act	caa	gat	gat	att	gaa	aaa	cac	cag	agt	gat	gca	ggt	tta	tat	gta	2592
Thr	Gln	Asp	Asp	Ile	Glu	Lys	His	Gln	Ser	Asp	Ala	Gly	Leu	Tyr	Val	
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Ile	Val	Pro	Val	Ile	Ile	Ser	Ser	Ser	Ile	Leu	Leu	Leu	Gly	Thr	Leu	
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Leu	Ile	Ser	His	Gln	Arg	Met	Lys	Lys	Leu	Phe	Trp	Glu	Asp	Val	Pro	
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aac	ccc	aag	aat	tgt	tcc	tgg	gca	caa	gga	ctt	aat	ttt	cag	aag	aga	2736
Asn	Pro	Lys	Asn	Cys	Ser	Trp	Ala	Gln	Gly	Leu	Asn	Phe	Gln	Lys	Arg	
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Thr	Asp	Ile	Leu	Asp	Pro	Pro	Val	Ala	Thr	Met	Val	Ser	Lys	Gly	Glu	
		915					920					925				
gag	ctg	ttc	acc	ggg	gtg	gtg	ccc	atc	ctg	gtc	gag	ctg	gac	ggc	gac	2832
Glu	Leu	Phe	Thr	Gly	Val	Val	Pro	Ile	Leu	Val	Glu	Leu	Asp	Gly	Asp	
	930					935					940					
gta	aac	ggc	cac	aag	ttc	agc	gtg	tcc	ggc	gag	ggc	gag	ggc	gat	gcc	2880
Val	Asn	Gly	His	Lys	Phe	Ser	Val	Ser	Gly	Glu	Gly	Glu	Gly	Asp	Ala	
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ccc	gtg	ccc	tgg	ccc	acc	ctc	gtg	acc	acc	ttc	ggc	tac	ggc	gtg	cag		2976
Pro	Val	Pro	Trp	Pro	Thr	Leu	Val	Thr	Thr	Phe	Gly	Tyr	Gly	Val	Gln		
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Cys	Phe	Ala	Arg	Tyr	Pro	Asp	His	Met	Arg	Gln	His	Asp	Phe	Phe	Lys		
		995					1000					1005					
tcc	gcc	atg	ccc	gaa	ggc	tac	gtc	cag	gag	cgc	acc	atc	ttc	ttc			3069
Ser	Ala	Met	Pro	Glu	Gly	Tyr	Val	Gln	Glu	Arg	Thr	Ile	Phe	Phe			
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aag	gac	gac	ggc	aac	tac	aag	acc	cgc	gcc	gag	gtg	aag	ttc	gag			3114
Lys	Asp	Asp	Gly	Asn	Tyr	Lys	Thr	Arg	Ala	Glu	Val	Lys	Phe	Glu			
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ggc	gac	acc	ctg	gtg	aac	cgc	atc	gag	ctg	aag	ggc	atc	gac	ttc			3159
Gly	Asp	Thr	Leu	Val	Asn	Arg	Ile	Glu	Leu	Lys	Gly	Ile	Asp	Phe			
	1040					1045					1050						
aag	gag	gac	ggc	aac	atc	ctg	ggg	cac	aag	ctg	gag	tac	aac	tac			3204
Lys	Glu	Asp	Gly	Asn	Ile	Leu	Gly	His	Lys	Leu	Glu	Tyr	Asn	Tyr			
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aac	agc	cac	aac	gtc	tat	atc	atg	gcc	gac	aag	cag	aag	aac	ggc			3249
Asn	Ser	His	Asn	Val	Tyr	Ile	Met	Ala	Asp	Lys	Gln	Lys	Asn	Gly			
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Ile	Lys	Val	Asn	Phe	Lys	Ile	Arg	His	Asn	Ile	Glu	Asp	Gly	Ser			
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gtg	cag	ctc	gcc	gac	cac	tac	cag	cag	aac	acc	ccc	atc	ggc	gac			3339
Val	Gln	Leu	Ala	Asp	His	Tyr	Gln	Gln	Asn	Thr	Pro	Ile	Gly	Asp			
	1100					1105					1110						
ggc	ccc	gtg	ctg	ctg	ccc	gac	aac	cac	tac	ctg	agc	tac	cag	tcc			3384
Gly	Pro	Val	Leu	Leu	Pro	Asp	Asn	His	Tyr	Leu	Ser	Tyr	Gln	Ser			
	1115					1120					1125						
gcc	ctg	agc	aaa	gac	ccc	aac	gag	aag	cgc	gat	cac	atg	gtc	ctg			3429
Ala	Leu	Ser	Lys	Asp	Pro	Asn	Glu	Lys	Arg	Asp	His	Met	Val	Leu			
	1130					1135					1140						
ctg	gag	ttc	gtg	acc	gcc	gcc	ggg	atc	act	ctc	ggc	atg	gac	gag			3474
Leu	Glu	Phe	Val	Thr	Ala	Ala	Gly	Ile	Thr	Leu	Gly	Met	Asp	Glu			
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Leu	Tyr	Lys															
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 Gln Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Thr Arg Tyr Pro Ile
 35 40 45
 Thr Pro Trp Arg Phe Lys Leu Ser Cys Met Pro Pro Asn Ser Thr Tyr
 50 55 60
 Asp Tyr Phe Leu Leu Pro Ala Gly Leu Ser Lys Asn Thr Ser Asn Ser
 65 70 75 80
 Asn Gly His Tyr Glu Thr Ala Val Glu Pro Lys Phe Asn Ser Ser Gly
 85 90 95
 Thr His Phe Ser Asn Leu Ser Lys Thr Thr Phe His Cys Cys Phe Arg
 100 105 110
 Ser Glu Gln Asp Arg Asn Cys Ser Leu Cys Ala Asp Asn Ile Glu Gly
 115 120 125
 Thr Thr Phe Val Ser Thr Val Asn Ser Leu Val Phe Gln Gln Ile Asp
 130 135 140
 Ala Asn Trp Asn Ile Gln Cys Trp Leu Lys Gly Asp Leu Lys Leu Phe
 145 150 155 160
 Ile Cys Tyr Val Glu Ser Leu Phe Lys Asn Leu Phe Arg Asn Tyr Asn
 165 170 175
 Tyr Lys Val His Leu Leu Tyr Val Leu Pro Glu Val Leu Glu Asp Ser
 180 185 190
 Pro Leu Val Pro Gln Lys Gly Ser Phe Gln Met Val His Cys Asn Cys
 195 200 205
 Ser Val His Glu Cys Cys Glu Cys Leu Val Pro Val Pro Thr Ala Lys
 210 215 220
 Leu Asn Asp Thr Leu Leu Met Cys Leu Lys Ile Thr Ser Gly Gly Val
 225 230 235 240

Ile Phe Arg Ser Pro Leu Met Ser Val Gln Pro Ile Asn Met Val Lys
 245 250 255
 Pro Asp Pro Pro Leu Gly Leu His Met Glu Ile Thr Asp Asp Gly Asn
 260 265 270
 Leu Lys Ile Ser Trp Ser Ser Pro Pro Leu Val Pro Phe Pro Leu Gln
 275 280 285
 Tyr Gln Val Lys Tyr Ser Glu Asn Ser Thr Thr Val Ile Arg Glu Ala
 290 295 300
 Asp Lys Ile Val Ser Ala Thr Ser Leu Leu Val Asp Ser Ile Leu Pro
 305 310 315 320
 Gly Ser Ser Tyr Glu Val Gln Val Arg Gly Lys Arg Leu Asp Gly Pro
 325 330 335
 Gly Ile Trp Ser Asp Trp Ser Thr Pro Arg Val Phe Thr Thr Gln Asp
 340 345 350
 Val Ile Tyr Phe Pro Pro Lys Ile Leu Thr Ser Val Gly Ser Asn Val
 355 360 365
 Ser Phe His Cys Ile Tyr Lys Lys Glu Asn Lys Ile Val Pro Ser Lys
 370 375 380
 Glu Ile Val Trp Trp Met Asn Leu Ala Glu Lys Ile Pro Gln Ser Gln
 385 390 395 400
 Tyr Asp Val Val Ser Asp His Val Ser Lys Val Thr Phe Phe Asn Leu
 405 410 415
 Asn Glu Thr Lys Pro Arg Gly Lys Phe Thr Tyr Asp Ala Val Tyr Cys
 420 425 430
 Cys Asn Glu His Glu Cys His His Arg Tyr Ala Glu Leu Tyr Val Ile
 435 440 445
 Asp Val Asn Ile Asn Ile Ser Cys Glu Thr Asp Gly Tyr Leu Thr Lys
 450 455 460
 Met Thr Cys Arg Trp Ser Thr Ser Thr Ile Gln Ser Leu Ala Glu Ser
 465 470 475 480
 Thr Leu Gln Leu Arg Tyr His Arg Ser Ser Leu Tyr Cys Ser Asp Ile
 485 490 495
 Pro Ser Ile His Pro Ile Ser Glu Pro Lys Asp Cys Tyr Leu Gln Ser
 500 505 510

Asp Gly Phe Tyr Glu Cys Ile Phe Gln Pro Ile Phe Leu Leu Ser Gly
 515 520 525

Tyr Thr Met Trp Ile Arg Ile Asn His Ser Leu Gly Ser Leu Asp Ser
 530 535 540

Pro Pro Thr Cys Val Leu Pro Asp Ser Val Val Lys Pro Leu Pro Pro
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Ser Ser Val Lys Ala Glu Ile Thr Ile Asn Ile Gly Leu Leu Lys Ile
 565 570 575

Ser Trp Glu Lys Pro Val Phe Pro Glu Asn Asn Leu Gln Phe Gln Ile
 580 585 590

Arg Tyr Gly Leu Ser Gly Lys Glu Val Gln Trp Lys Met Tyr Glu Val
 595 600 605

Tyr Asp Ala Lys Ser Lys Ser Val Ser Leu Pro Val Pro Asp Leu Cys
 610 615 620

Ala Val Tyr Ala Val Gln Val Arg Cys Lys Arg Leu Asp Gly Leu Gly
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Tyr Trp Ser Asn Trp Ser Asn Pro Ala Tyr Thr Val Val Met Asp Ile
 645 650 655

Lys Val Pro Met Arg Gly Pro Glu Phe Trp Arg Ile Ile Asn Gly Asp
 660 665 670

Thr Met Lys Lys Glu Lys Asn Val Thr Leu Leu Trp Lys Pro Leu Met
 675 680 685

Lys Asn Asp Ser Leu Cys Ser Val Gln Arg Tyr Val Ile Asn His His
 690 695 700

Thr Ser Cys Asn Gly Thr Trp Ser Glu Asp Val Gly Asn His Thr Lys
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Phe Thr Phe Leu Trp Thr Glu Gln Ala His Thr Val Thr Val Leu Ala
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Ile Asn Ser Ile Gly Ala Ser Val Ala Asn Phe Asn Leu Thr Phe Ser
 740 745 750

Trp Pro Met Ser Lys Val Asn Ile Val Gln Ser Leu Ser Ala Tyr Pro
 755 760 765

Leu Asn Ser Ser Cys Val Ile Val Ser Trp Ile Leu Ser Pro Ser Asp
 770 775 780

Tyr Lys Leu Met Tyr Phe Ile Ile Glu Trp Lys Asn Leu Asn Glu Asp
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 Gly Glu Ile Lys Trp Leu Arg Ile Ser Ser Ser Val Lys Lys Tyr Tyr
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 Ile His Asp His Phe Ile Pro Ile Glu Lys Tyr Gln Phe Ser Leu Tyr
 820 825 830
 Pro Ile Phe Met Glu Gly Val Gly Lys Pro Lys Ile Ile Asn Ser Phe
 835 840 845
 Thr Gln Asp Asp Ile Glu Lys His Gln Ser Asp Ala Gly Leu Tyr Val
 850 855 860
 Ile Val Pro Val Ile Ile Ser Ser Ser Ile Leu Leu Leu Gly Thr Leu
 865 870 875 880
 Leu Ile Ser His Gln Arg Met Lys Lys Leu Phe Trp Glu Asp Val Pro
 885 890 895
 Asn Pro Lys Asn Cys Ser Trp Ala Gln Gly Leu Asn Phe Gln Lys Arg
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 Thr Asp Ile Leu Asp Pro Pro Val Ala Thr Met Val Ser Lys Gly Glu
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 Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp
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 Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala
 945 950 955 960
 Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu
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 Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe Gly Tyr Gly Val Gln
 980 985 990
 Cys Phe Ala Arg Tyr Pro Asp His Met Arg Gln His Asp Phe Phe Lys
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 Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe
 1010 1015 1020
 Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu
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 Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe
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Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr
 1055 1060 1065
 Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly
 1070 1075 1080
 Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser
 1085 1090 1095
 Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp
 1100 1105 1110
 Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser
 1115 1120 1125
 Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu
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gga ctg atg ttt ttg atg ctt gga tgt gcc ctt cca ata tac aac aaa	96
Gly Leu Met Phe Leu Met Leu Gly Cys Ala Leu Pro Ile Tyr Asn Lys	
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tac tgg ccc ctc ttt gtt cta ttt ttt tac atc ctt tca cct att cca	144
Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser Pro Ile Pro	
35 40 45	
tac tgc ata gca aga aga tta gtg gat gat aca gat gct atg agt aac	192

Tyr	Cys	Ile	Ala	Arg	Arg	Leu	Val	Asp	Asp	Thr	Asp	Ala	Met	Ser	Asn		
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Ala	Cys	Lys	Glu	Leu	Ala	Ile	Phe	Leu	Thr	Thr	Gly	Ile	Val	Val	Ser		
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gga	gct	tgt	gca	ctt	gtt	ctc	aca	gga	aac	aca	gtc	atc	ttt	gca	act		336
Gly	Ala	Cys	Ala	Leu	Val	Leu	Thr	Gly	Asn	Thr	Val	Ile	Phe	Ala	Thr		
			100					105					110				
ata	cta	ggc	ttt	ttc	ttg	gtc	ttt	gga	agc	aat	gac	gac	ttc	agc	tgg		384
Ile	Leu	Gly	Phe	Phe	Leu	Val	Phe	Gly	Ser	Asn	Asp	Asp	Phe	Ser	Trp		
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		35					40					45					
Tyr	Cys	Ile	Ala	Arg	Arg	Leu	Val	Asp	Asp	Thr	Asp	Ala	Met	Ser	Asn		
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Ala	Phe	Gly	Leu	Pro	Ile	Val	Phe	Ala	Arg	Ala	His	Leu	Ile	Glu	Trp		
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Gly	Ala	Cys	Ala	Leu	Val	Leu	Thr	Gly	Asn	Thr	Val	Ile	Phe	Ala	Thr		
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Gln Gln Trp
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Gly Leu Met Phe Leu Met Leu Gly Cys Ala Leu Pro Ile Tyr Asn Lys	
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Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser Pro Ile Pro	
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Tyr Cys Ile Ala Arg Arg Leu Val Asp Asp Thr Asp Ala Met Ser Asn	
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Ala Cys Lys Glu Leu Ala Ile Phe Leu Thr Thr Gly Ile Val Val Ser	
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Ala Phe Gly Leu Pro Ile Val Phe Ala Arg Ala His Leu Ile Glu Trp	
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Gly Ala Cys Ala Leu Val Leu Thr Gly Asn Thr Val Ile Phe Ala Thr	
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Ile Leu Gly Phe Phe Leu Val Phe Gly Ser Asn Asp Asp Phe Ser Trp	
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gcc Ala 305	ctg Leu	atc Ile	aag Lys	agc Ser	gag Glu 310	gag Glu	ggc Gly	gag Glu	aag Lys	atg Met 315	gtg Val	ctg Leu	gag Glu	aac Asn	aac Asn 320	960
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Gly Ala Cys Ala Leu Val Leu Thr Gly Asn Thr Val Ile Phe Ala Thr
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 Ser Gly Lys Ser Gly Asn Gly Ser Tyr Arg Leu Leu Asp His Tyr Lys
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Gly Leu Met Phe Leu Met Leu Gly Cys Ala Leu Pro Ile Tyr Asn Lys	
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Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser Pro Ile Pro	
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Tyr Cys Ile Ala Arg Arg Leu Val Asp Asp Thr Asp Ala Met Ser Asn
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Ala Phe Gly Leu Pro Ile Val Phe Ala Arg Ala His Leu Ile Glu Trp
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Gly Ala Cys Ala Leu Val Leu Thr Gly Asn Thr Val Ile Phe Ala Thr
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Ile Leu Gly Phe Phe Leu Val Phe Gly Ser Asn Asp Asp Phe Ser Trp
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Gln Gln Trp Arg Pro Val Asp Pro Pro Val Ala Thr Met Val Ser Lys
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 Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe Gly Tyr Gly
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 Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu
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 Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser Ala Leu Ser Lys Asp Pro
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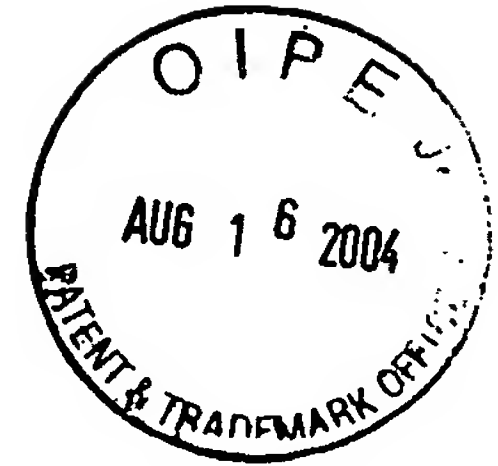
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UHLMANN, Eugen

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gtggctaaac cacttaacct ctctgggtgt tacctgctca tttgttta 648

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<223> antisens AS14

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<222> (1)..(396)
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Met Ala Gly Val Lys Ala Leu Val Ala Leu Ser Phe Ser Gly Ala Ile
1 5 10 15

gga ctg act ttt ctt atg ctg gga tgt gcc tta gag gat tat ggc gtt 96
Gly Leu Thr Phe Leu Met Leu Gly Cys Ala Leu Glu Asp Tyr Gly Val
20 25 30

FRAV20030005 US NP Sequence Listing.txt

tac tgg ccc tta ttc gtc ctg att ttc cac gcc atc tcc ccc atc ccc Tyr Trp Pro Leu Phe Val Leu Ile Phe His Ala Ile Ser Pro Ile Pro 35 40 45	144
cat ttc att gcc aaa aga gtc acc tat gac tca gat gca acc agt agt His Phe Ile Ala Lys Arg Val Thr Tyr Asp Ser Asp Ala Thr Ser Ser 50 55 60	192
gcc tgt cgg gaa ctg gca tat ttc ttc act act gga att gtt gtt tct Ala Cys Arg Glu Leu Ala Tyr Phe Phe Thr Thr Gly Ile Val Val Ser 65 70 75 80	240
gcc ttt gga ttt cct gtt att ctt gct cgt gtg gct gtg atc aaa tgg Ala Phe Gly Phe Pro Val Ile Leu Ala Arg Val Ala Val Ile Lys Trp 85 90 95	288
gga gcc tgc ggc ctt gtg ttg gca ggc aat gca gtc att ttc ctt aca Gly Ala Cys Gly Leu Val Leu Ala Gly Asn Ala Val Ile Phe Leu Thr 100 105 110	336
att caa ggg ttt ttc ctt ata ttt gga aga gga gat gat ttt agc tgg Ile Gln Gly Phe Phe Leu Ile Phe Gly Arg Gly Asp Asp Phe Ser Trp 115 120 125	384
gag cag tgg tag Glu Gln Trp 130	396

<210> 4

<211> 131

<212> PRT

<213> Homo sapiens

<400> 4

Met Ala Gly val Lys Ala Leu Val Ala Leu Ser Phe Ser Gly Ala Ile 1 5 10 15
Gly Leu Thr Phe Leu Met Leu Gly Cys Ala Leu Glu Asp Tyr Gly Val 20 25 30
Tyr Trp Pro Leu Phe Val Leu Ile Phe His Ala Ile Ser Pro Ile Pro 35 40 45
His Phe Ile Ala Lys Arg Val Thr Tyr Asp Ser Asp Ala Thr Ser Ser 50 55 60
Ala Cys Arg Glu Leu Ala Tyr Phe Phe Thr Thr Gly Ile Val Val Ser 65 70 75 80
Ala Phe Gly Phe Pro Val Ile Leu Ala Arg Val Ala Val Ile Lys Trp 85 90 95

FRAV20030005 US NP Sequence Listing.txt

Gly Ala Cys Gly Leu Val Leu Ala Gly Asn Ala Val Ile Phe Leu Thr
100 105 110

Ile Gln Gly Phe Phe Leu Ile Phe Gly Arg Gly Asp Asp Phe Ser Trp
115 120 125

Glu Gln Trp
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<212> DNA

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<220>

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<223>

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Met Ala Gly Val Lys Ala Leu Val Ala Leu Ser Phe Ser Gly Ala Ile	
1 5 10 15	

gga ctg act ttt ctt atg ctg gga tgt gcc tta gag gat tat ggc gtt	96
Gly Leu Thr Phe Leu Met Leu Gly Cys Ala Leu Glu Asp Tyr Gly Val	
20 25 30	

tac tgg ccc tta ttc gtc ctg att ttc cac gcc atc tcc ccc atc ccc	144
Tyr Trp Pro Leu Phe Val Leu Ile Phe His Ala Ile Ser Pro Ile Pro	
35 40 45	

cat ttc att gcc aaa aga gtc acc tat gac tca gat gca acc agt agt	192
His Phe Ile Ala Lys Arg Val Thr Tyr Asp Ser Asp Ala Thr Ser Ser	
50 55 60	

FRAV20030005.US NP Sequence Listing.txt

gcc	tgt	cgg	gaa	ctg	gca	tat	ttc	ttc	act	act	gga	att	gtt	gtt	tct	240
Ala	Cys	Arg	Glu	Leu	Ala	Tyr	Phe	Phe	Thr	Thr	Gly	Ile	Val	Val	Ser	
65					70				75						80	
gcc	ttt	gga	ttt	cct	gtt	att	ctt	gct	cgt	gtg	gct	gtg	atc	aaa	tgg	288
Ala	Phe	Gly	Phe	Pro	Val	Ile	Leu	Ala	Arg	Val	Ala	Val	Ile	Lys	Trp	
				85					90					95		
gga	gcc	tgc	ggc	ctt	gtg	ttg	gca	ggc	aat	gca	gtc	att	ttc	ctt	aca	336
Gly	Ala	Cys	Gly	Leu	Val	Leu	Ala	Gly	Asn	Ala	Val	Ile	Phe	Leu	Thr	
			100					105					110			
att	caa	ggg	ttt	ttc	ctt	ata	ttt	gga	aga	gga	gat	gat	ttt	agc	tgg	384
Ile	Gln	Gly	Phe	Phe	Leu	Ile	Phe	Gly	Arg	Gly	Asp	Asp	Phe	Ser	Trp	
		115					120					125				
gag	cag	tgg	att	ccg	ggg	gat	cca	ccg	gct	aga	gcc	acc	atg	acc	agc	432
Glu	Gln	Trp	Ile	Pro	Gly	Asp	Pro	Pro	Ala	Arg	Ala	Thr	Met	Thr	Ser	
	130					135					140					
aag	gtg	tac	gac	ccc	gag	cag	agg	aag	agg	atg	atc	acc	ggc	ccc	cag	480
Lys	Val	Tyr	Asp	Pro	Glu	Gln	Arg	Lys	Arg	Met	Ile	Thr	Gly	Pro	Gln	
145					150					155					160	
tgg	tgg	gcc	agg	tgc	aag	cag	atg	aac	gtg	ctg	gac	agc	ttc	atc	aac	528
Trp	Trp	Ala	Arg	Cys	Lys	Gln	Met	Asn	Val	Leu	Asp	Ser	Phe	Ile	Asn	
				165					170					175		
tac	tac	gac	agc	gag	aag	cac	gcc	gag	aac	gcc	gtg	atc	ttc	ctg	cac	576
Tyr	Tyr	Asp	Ser	Glu	Lys	His	Ala	Glu	Asn	Ala	Val	Ile	Phe	Leu	His	
			180					185					190			
ggc	aac	gcc	gct	agc	agc	tac	ctg	tgg	agg	cac	gtg	gtg	ccc	cac	atc	624
Gly	Asn	Ala	Ala	Ser	Ser	Tyr	Leu	Trp	Arg	His	Val	Val	Pro	His	Ile	
		195					200					205				
gag	ccc	gtg	gcc	agg	tgc	atc	atc	ccc	gat	ctg	atc	ggc	atg	ggc	aag	672
Glu	Pro	Val	Ala	Arg	Cys	Ile	Ile	Pro	Asp	Leu	Ile	Gly	Met	Gly	Lys	
	210					215					220					
agc	ggc	aag	agc	ggc	aac	ggc	agc	tac	agg	ctg	ctg	gac	cac	tac	aag	720
Ser	Gly	Lys	Ser	Gly	Asn	Gly	Ser	Tyr	Arg	Leu	Leu	Asp	His	Tyr	Lys	
225					230					235					240	
tac	ctg	acc	gcc	tgg	ttc	gag	ctc	ctg	aac	ctg	ccc	aag	aag	atc	atc	768
Tyr	Leu	Thr	Ala	Trp	Phe	Glu	Leu	Leu	Asn	Leu	Pro	Lys	Lys	Ile	Ile	
				245					250					255		
ttc	gtg	ggc	cac	gac	tgg	ggc	gcc	tgc	ctg	gcc	ttc	cac	tac	agc	tac	816
Phe	Val	Gly	His	Asp	Trp	Gly	Ala	Cys	Leu	Ala	Phe	His	Tyr	Ser	Tyr	
			260					265					270			
gag	cac	cag	gac	aag	atc	aag	gcc	atc	gtg	cac	gcc	gag	agc	gtg	gtg	864
Glu	His	Gln	Asp	Lys	Ile	Lys	Ala	Ile	Val	His	Ala	Glu	Ser	Val	Val	
		275					280					285				
gac	gtg	atc	gag	agc	tgg	gac	gag	tgg	cca	gac	atc	gag	gag	gac	atc	912
Asp	Val	Ile	Glu	Ser	Trp	Asp	Glu	Trp	Pro	Asp	Ile	Glu	Glu	Asp	Ile	
	290					295					300					
gcc	ctg	atc	aag	agc	gag	gag	ggc	gag	aag	atg	gtg	ctg	gag	aac	aac	960
Ala	Leu	Ile	Lys	Ser	Glu	Glu	Gly	Glu	Lys	Met	Val	Leu	Glu	Asn	Asn	
305					310					315					320	

FRAV20030005 US NP Sequence Listing.txt

ttc ttc gtg gag acc atg ctg ccc agc aag atc atg aga aag ctg gag Phe Phe Val Glu Thr Met Leu Pro Ser Lys Ile Met Arg Lys Leu Glu 325 330 335	1008
ccc gag gag ttc gcc gcc tac ctg gag ccc ttc aag gag aag ggc gag Pro Glu Glu Phe Ala Ala Tyr Leu Glu Pro Phe Lys Glu Lys Gly Glu 340 345 350	1056
gtg aga aga ccc acc ctg agc tgg ccc aga gag atc ccc ctg gtg aag Val Arg Arg Pro Thr Leu Ser Trp Pro Arg Glu Ile Pro Leu Val Lys 355 360 365	1104
ggc ggc aag ccc gac gtg gtg cag atc gtg aga aac tac aac gcc tac Gly Gly Lys Pro Asp Val Val Gln Ile Val Arg Asn Tyr Asn Ala Tyr 370 375 380	1152
ctg aga gcc agc gac gac ctg ccc aag atg ttc atc gag agc gac ccc Leu Arg Ala Ser Asp Asp Leu Pro Lys Met Phe Ile Glu Ser Asp Pro 385 390 400	1200
ggc ttc ttc agc aac gcc atc gtg gag ggc gcc aag aag ttc ccc aac Gly Phe Phe Ser Asn Ala Ile Val Glu Gly Ala Lys Lys Phe Pro Asn 405 410 415	1248
acc gag ttc gtg aag gtg aag ggc ctg cac ttc agc cag gag gac gcc Thr Glu Phe Val Lys Val Lys Gly Leu His Phe Ser Gln Glu Asp Ala 420 425 430	1296
ccc gac gag atg ggc aag tac atc aag agc ttc gtg gag aga gtg ctg Pro Asp Glu Met Gly Lys Tyr Ile Lys Ser Phe Val Glu Arg Val Leu 435 440 445	1344
aag aac gag cag taa Lys Asn Glu Gln 450	1359

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<211> 452

<212> PRT

<213> Artificial sequence

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<223> OB RGRP LUC

<220>

<221> misc_feature

<223> OB RGRP LUC

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Met Ala Gly Val Lys Ala Leu Val Ala Leu Ser Phe Ser Gly Ala Ile 1 5 10 15
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FRAV20030005 US NP Sequence Listing.txt

Gly Leu Thr Phe Leu Met Leu Gly Cys Ala Leu Glu Asp Tyr Gly Val
20 25 30

Tyr Trp Pro Leu Phe Val Leu Ile Phe His Ala Ile Ser Pro Ile Pro
35 40 45

His Phe Ile Ala Lys Arg Val Thr Tyr Asp Ser Asp Ala Thr Ser Ser
50 55 60

Ala Cys Arg Glu Leu Ala Tyr Phe Phe Thr Thr Gly Ile Val Val Ser
65 70 75 80

Ala Phe Gly Phe Pro Val Ile Leu Ala Arg Val Ala Val Ile Lys Trp
85 90 95

Gly Ala Cys Gly Leu Val Leu Ala Gly Asn Ala Val Ile Phe Leu Thr
100 105 110

Ile Gln Gly Phe Phe Leu Ile Phe Gly Arg Gly Asp Asp Phe Ser Trp
115 120 125

Glu Gln Trp Ile Pro Gly Asp Pro Pro Ala Arg Ala Thr Met Thr Ser
130 135 140

Lys Val Tyr Asp Pro Glu Gln Arg Lys Arg Met Ile Thr Gly Pro Gln
145 150 155 160

Trp Trp Ala Arg Cys Lys Gln Met Asn Val Leu Asp Ser Phe Ile Asn
165 170 175

Tyr Tyr Asp Ser Glu Lys His Ala Glu Asn Ala Val Ile Phe Leu His
180 185 190

Gly Asn Ala Ala Ser Ser Tyr Leu Trp Arg His Val Val Pro His Ile
195 200 205

Glu Pro Val Ala Arg Cys Ile Ile Pro Asp Leu Ile Gly Met Gly Lys
210 215 220

Ser Gly Lys Ser Gly Asn Gly Ser Tyr Arg Leu Leu Asp His Tyr Lys
225 230 235 240

Tyr Leu Thr Ala Trp Phe Glu Leu Leu Asn Leu Pro Lys Lys Ile Ile
245 250 255

Phe Val Gly His Asp Trp Gly Ala Cys Leu Ala Phe His Tyr Ser Tyr
260 265 270

FRAV20030005 US NP Sequence Listing.txt

Glu His Gln Asp Lys Ile Lys Ala Ile Val His Ala Glu Ser Val Val
275 280 285

Asp Val Ile Glu Ser Trp Asp Glu Trp Pro Asp Ile Glu Glu Asp Ile
290 295 300

Ala Leu Ile Lys Ser Glu Glu Gly Glu Lys Met Val Leu Glu Asn Asn
305 310 315 320

Phe Phe Val Glu Thr Met Leu Pro Ser Lys Ile Met Arg Lys Leu Glu
325 330 335

Pro Glu Glu Phe Ala Ala Tyr Leu Glu Pro Phe Lys Glu Lys Gly Glu
340 345 350

Val Arg Arg Pro Thr Leu Ser Trp Pro Arg Glu Ile Pro Leu Val Lys
355 360 365

Gly Gly Lys Pro Asp Val Val Gln Ile Val Arg Asn Tyr Asn Ala Tyr
370 375 380

Leu Arg Ala Ser Asp Asp Leu Pro Lys Met Phe Ile Glu Ser Asp Pro
385 390 395 400

Gly Phe Phe Ser Asn Ala Ile Val Glu Gly Ala Lys Lys Phe Pro Asn
405 410 415

Thr Glu Phe Val Lys Val Lys Gly Leu His Phe Ser Gln Glu Asp Ala
420 425 430

Pro Asp Glu Met Gly Lys Tyr Ile Lys Ser Phe Val Glu Arg Val Leu
435 440 445

Lys Asn Glu Gln
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<211> 1128

<212> DNA

<213> Artificial sequence

<220>

<223> OB RGRP YFP

FRAV20030005 US NP Sequence Listing.txt

<220>

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<223> OB RGRP YFP

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<222> (1)..(1128)

<223>

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1 5 10 15	
gga ctg act ttt ctt atg ctg gga tgt gcc tta gag gat tat ggc gtt	96
Gly Leu Thr Phe Leu Met Leu Gly Cys Ala Leu Glu Asp Tyr Gly Val	
20 25 30	
tac tgg ccc tta ttc gtc ctg att ttc cac gcc atc tcc ccc atc ccc	144
Tyr Trp Pro Leu Phe Val Leu Ile Phe His Ala Ile Ser Pro Ile Pro	
35 40 45	
cat ttc att gcc aaa aga gtc acc tat gac tca gat gca acc agt agt	192
His Phe Ile Ala Lys Arg Val Thr Tyr Asp Ser Ala Thr Ser Ser	
50 55 60	
gcc tgt cgg gaa ctg gca tat ttc ttc act act gga att gtt gtt tct	240
Ala Cys Arg Glu Leu Ala Tyr Phe Phe Thr Thr Gly Ile Val Val Ser	
65 70 75 80	
gcc ttt gga ttt cct gtt att ctt gct cgt gtg gct gtg atc aaa tgg	288
Ala Phe Gly Phe Pro Val Ile Leu Ala Arg Val Ala Val Ile Lys Trp	
85 90 95	
gga gcc tgc ggc ctt gtg ttg gca ggc aat gca gtc att ttc ctt aca	336
Gly Ala Cys Gly Leu Val Leu Ala Gly Asn Ala Val Ile Phe Leu Thr	
100 105 110	
att caa ggg ttt ttc ctt ata ttt gga aga gga gat gat ttt agc tgg	384
Ile Gln Gly Phe Phe Leu Ile Phe Gly Arg Gly Asp Asp Phe Ser Trp	
115 120 125	
gag cag tgg att ccg gtc gcc acc atg gtg agc aag ggc gag gag ctg	432
Glu Gln Trp Ile Pro Val Ala Thr Met Val Ser Lys Gly Glu Glu Leu	
130 135 140	
ttc acc ggg gtg gtg ccc atc ctg gtc gag ctg gac ggc gac gta aac	480
Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val Asn	
145 150 155 160	
ggc cac aag ttc agc gtg tcc ggc gag ggc gag ggc gat gcc acc tac	528
Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala Thr Tyr	
165 170 175	

FRAV20030005 US NP Sequence Listing.txt

ggc aag ctg acc ctg aag ttc atc tgc acc acc ggc aag ctg ccc gtg Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu Pro Val 180 185 190	576
ccc tgg ccc acc ctc gtg acc acc ttc ggc tac ggc gtg cag tgc ttc Pro Trp Pro Thr Leu Val Thr Thr Phe Gly Tyr Gly Val Gln Cys Phe 195 200 205	624
gcc cgc tac ccc gac cac atg cgc cag cac gac ttc ttc aag tcc gcc Ala Arg Tyr Pro Asp His Met Arg Gln His Asp Phe Phe Lys Ser Ala 210 215 220	672
atg ccc gaa ggc tac gtc cag gag cgc acc atc ttc ttc aag gac gac Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe Lys Asp Asp 225 230 235 240	720
ggc aac tac aag acc cgc gcc gag gtg aag ttc gag ggc gac acc ctg Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu Gly Asp Thr Leu 245 250 255	768
gtg aac cgc atc gag ctg aag ggc atc gac ttc aag gag gac ggc aac Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn 260 265 270	816
atc ctg ggg cac aag ctg gag tac aac tac aac agc cac aac gtc tat Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr 275 280 285	864
atc atg gcc gac aag cag aag aac ggc atc aag gtg aac ttc aag atc Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Val Asn Phe Lys Ile 290 295 300	912
cgc cac aac atc gag gac ggc agc gtg cag ctc gcc gac cac tac cag Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala Asp His Tyr Gln 305 310 315 320	960
cag aac acc ccc atc ggc gac ggc ccc gtg ctg ctg ccc gac aac cac Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu Pro Asp Asn His 325 330 335	1008
tac ctg agc tac cag tcc gcc ctg agc aaa gac ccc aac gag aag cgc Tyr Leu Ser Tyr Gln Ser Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg 340 345 350	1056
gat cac atg gtc ctg ctg gag ttc gtg acc gcc gcc ggc atc act ctc Asp His Met Val Leu Leu Glu Phe Val Thr Ala Ala Gly Ile Thr Leu 355 360 365	1104
ggc atg gac gag ctg tac aag taa Gly Met Asp Glu Leu Tyr Lys 370 375	1128

<210> 8

<211> 375

<212> PRT

<213> Artificial Sequence

FRAV20030005 US NP Sequence Listing.txt

<220>

<223> OB RGRP YFP

<220>

<221> misc_feature

<223> OB RGRP YFP

<400> 8

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Gly Leu Thr Phe Leu Met Leu Gly Cys Ala Leu Glu Asp Tyr Gly Val
20 25 30

Tyr Trp Pro Leu Phe Val Leu Ile Phe His Ala Ile Ser Pro Ile Pro
35 40 45

His Phe Ile Ala Lys Arg Val Thr Tyr Asp Ser Asp Ala Thr Ser Ser
50 55 60

Ala Cys Arg Glu Leu Ala Tyr Phe Phe Thr Thr Gly Ile Val Val Ser
65 70 75 80

Ala Phe Gly Phe Pro Val Ile Leu Ala Arg Val Ala Val Ile Lys Trp
85 90 95

Gly Ala Cys Gly Leu Val Leu Ala Gly Asn Ala Val Ile Phe Leu Thr
100 105 110

Ile Gln Gly Phe Phe Leu Ile Phe Gly Arg Gly Asp Asp Phe Ser Trp
115 120 125

Glu Gln Trp Ile Pro Val Ala Thr Met Val Ser Lys Gly Glu Glu Leu
130 135 140

Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val Asn
145 150 155 160

Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala Thr Tyr
165 170 175

Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu Pro Val
180 185 190

Pro Trp Pro Thr Leu Val Thr Thr Phe Gly Tyr Gly Val Gln Cys Phe
195 200 205

FRAV20030005 US NP Sequence Listing.txt

Ala Arg Tyr Pro Asp His Met Arg Gln His Asp Phe Phe Lys Ser Ala
210 215 220

Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe Lys Asp Asp
225 230 235 240

Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu Gly Asp Thr Leu
245 250 255

Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn
260 265 270

Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr
275 280 285

Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Val Asn Phe Lys Ile
290 295 300

Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala Asp His Tyr Gln
305 310 315 320

Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu Pro Asp Asn His
325 330 335

Tyr Leu Ser Tyr Gln Ser Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg
340 345 350

Asp His Met Val Leu Leu Glu Phe Val Thr Ala Ala Gly Ile Thr Leu
355 360 365

Gly Met Asp Glu Leu Tyr Lys
370 375

<210> 9

<211> 2691

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(2691)

<223>

FRAV20030005 US NP Sequence Listing.txt

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tat gtg ata act gcg ttt aac ttg tca tat cca att act cct tgg aga      96
Tyr Val Ile Thr Ala Phe Asn Leu Ser Tyr Pro Ile Thr Pro Trp Arg
                               20          25          30

ttt aag ttg tct tgc atg cca cca aat tca acc tat gac tac ttc ctt      144
Phe Lys Leu Ser Cys Met Pro Pro Asn Ser Thr Tyr Asp Tyr Phe Leu
                               35          40          45

ttg cct gct gga ctc tca aag aat act tca aat tcg aat gga cat tat      192
Leu Pro Ala Gly Leu Ser Lys Asn Thr Ser Asn Ser Asn Gly His Tyr
                               50          55          60

gag aca gct gtt gaa cct aag ttt aat tca agt ggt act cac ttt tct      240
Glu Thr Ala Val Glu Pro Lys Phe Asn Ser Ser Gly Thr His Phe Ser
65                               70          75          80

aac tta tcc aaa aca act ttc cac tgt tgc ttt cgg agt gag caa gat      288
Asn Leu Ser Lys Thr Thr Phe His Cys Cys Phe Arg Ser Glu Gln Asp
                               85          90          95

aga aac tgc tcc tta tgt gca gac aac att gaa gga aag aca ttt gtt      336
Arg Asn Cys Ser Leu Cys Ala Asp Asn Ile Glu Gly Lys Thr Phe Val
                               100          105          110

tca aca gta aat tct tta gtt ttt caa caa ata gat gca aac tgg aac      384
Ser Thr Val Asn Ser Leu Val Phe Gln Gln Ile Asp Ala Asn Trp Asn
                               115          120          125

ata cag tgc tgg cta aaa gga gac tta aaa tta ttc atc tgt tat gtg      432
Ile Gln Cys Trp Leu Lys Gly Asp Leu Lys Leu Phe Ile Cys Tyr Val
                               130          135          140

gag tca tta ttt aag aat cta ttc agg aat tat aac tat aag gtc cat      480
Glu Ser Leu Phe Lys Asn Leu Phe Arg Asn Tyr Asn Tyr Lys Val His
145                               150          155          160

ctt tta tat gtt ctg cct gaa gtg tta gaa gat tca cct ctg gtt ccc      528
Leu Leu Tyr Val Leu Pro Glu Val Leu Glu Asp Ser Pro Leu Val Pro
                               165          170          175

caa aaa ggc agt ttt cag atg gtt cac tgc aat tgc agt gtt cat gaa      576
Gln Lys Gly Ser Phe Gln Met Val His Cys Asn Cys Ser Val His Glu
                               180          185          190

tgt tgt gaa tgt ctt gtg cct gtg cca aca gcc aaa ctc aac gac act      624
Cys Cys Glu Cys Leu Val Pro Val Pro Thr Ala Lys Leu Asn Asp Thr
                               195          200          205

ctc ctt atg tgt ttg aaa atc aca tct ggt gga gta att ttc cag tca      672
Leu Leu Met Cys Leu Lys Ile Thr Ser Gly Gly Val Ile Phe Gln Ser
                               210          215          220

cct cta atg tca gtt cag ccc ata aat atg gtg aag cct gat cca cca      720
Pro Leu Met Ser Val Gln Pro Pro Ile Asn Met Val Lys Pro Asp Pro Pro
225                               230          235          240

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FRAV20030005 US NP Sequence Listing.txt

tta	ggt	ttg	cat	atg	gaa	atc	aca	gat	gat	ggt	aat	tta	aag	att	tct	768
Leu	Gly	Leu	His	Met	Glu	Ile	Thr	Asp	Asp	Gly	Asn	Leu	Lys	Ile	Ser	
				245					250					255		
tgg	tcc	agc	cca	cca	ttg	gta	cca	ttt	cca	ctt	caa	tat	caa	gtg	aaa	816
Trp	Ser	Ser	Pro	Pro	Leu	Val	Pro	Phe	Pro	Leu	Gln	Tyr	Gln	Val	Lys	
			260					265					270			
tat	tca	gag	aat	tct	aca	aca	gtt	atc	aga	gaa	gct	gac	aag	att	gtc	864
Tyr	Ser	Glu	Asn	Ser	Thr	Thr	Val	Ile	Arg	Glu	Ala	Asp	Lys	Ile	Val	
		275					280					285				
tca	gct	aca	tcc	ctg	cta	gta	gac	agt	ata	ctt	cct	ggg	tct	tcg	tat	912
Ser	Ala	Thr	Ser	Leu	Leu	Val	Asp	Ser	Ile	Leu	Pro	Gly	Ser	Ser	Tyr	
	290					295					300					
gag	gtt	cag	gtg	agg	ggc	aag	aga	ctg	gat	ggc	cca	gga	atc	tgg	agt	960
Glu	Val	Gln	Val	Arg	Gly	Lys	Arg	Leu	Asp	Gly	Pro	Gly	Ile	Trp	Ser	
305					310					315					320	
gac	tgg	agt	act	cct	cgt	gtc	ttt	acc	aca	caa	gat	gtc	ata	tac	ttt	1008
Asp	Trp	Ser	Thr	Pro	Arg	Val	Phe	Thr	Thr	Gln	Asp	Val	Ile	Tyr	Phe	
				325					330					335		
cca	cct	aaa	att	ctg	aca	agt	gtt	ggg	tct	aat	gtt	tct	ttt	cac	tgc	1056
Pro	Pro	Lys	Ile	Leu	Thr	Ser	Val	Gly	Ser	Asn	Val	Ser	Phe	His	Cys	
			340					345					350			
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Ile	Tyr	Lys	Lys	Glu	Asn	Lys	Ile	Val	Pro	Ser	Lys	Glu	Ile	Val	Trp	
		355					360					365				
tgg	atg	aat	tta	gct	gag	aaa	att	cct	caa	agc	cag	tat	gat	gtt	gtg	1152
Trp	Met	Asn	Leu	Ala	Glu	Lys	Ile	Pro	Gln	Ser	Gln	Tyr	Asp	Val	Val	
	370					375					380					
agt	gat	cat	gtt	agc	aaa	gtt	act	ttt	ttc	aat	ctg	aat	gaa	acc	aaa	1200
Ser	Asp	His	Val	Ser	Lys	Val	Thr	Phe	Phe	Asn	Leu	Asn	Glu	Thr	Lys	
385					390					395					400	
cct	cga	gga	aag	ttt	acc	tat	gat	gca	gtg	tac	tgc	tgc	aat	gaa	cat	1248
Pro	Arg	Gly	Lys	Phe	Thr	Tyr	Asp	Ala	Val	Tyr	Cys	Cys	Asn	Glu	His	
				405					410					415		
gaa	tgc	cat	cat	cgc	tat	gct	gaa	tta	tat	gtg	att	gat	gtc	aat	atc	1296
Glu	Cys	His	His	Arg	Tyr	Ala	Glu	Leu	Tyr	Val	Ile	Asp	Val	Asn	Ile	
			420					425					430			
aat	atc	tca	tgt	gaa	act	gat	ggg	tac	tta	act	aaa	atg	act	tgc	aga	1344
Asn	Ile	Ser	Cys	Glu	Thr	Asp	Gly	Tyr	Leu	Thr	Lys	Met	Thr	Cys	Arg	
		435					440					445				
tgg	tca	acc	agt	aca	atc	cag	tca	ctt	gcg	gaa	agc	act	ttg	caa	ttg	1392
Trp	Ser	Thr	Ser	Thr	Ile	Gln	Ser	Leu	Ala	Glu	Ser	Thr	Leu	Gln	Leu	
	450					455					460					
agg	tat	cat	agg	agc	agc	ctt	tac	tgt	tct	gat	att	cca	tct	att	cat	1440
Arg	Tyr	His	Arg	Ser	Ser	Leu	Tyr	Cys	Ser	Asp	Ile	Pro	Ser	Ile	His	
465					470					475					480	
ccc	ata	tct	gag	ccc	aaa	gat	tgc	tat	ttg	cag	agt	gat	ggg	ttt	tat	1488
Pro	Ile	Ser	Glu	Pro	Lys	Asp	Cys	Tyr	Leu	Gln	Ser	Asp	Gly	Phe	Tyr	

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485				490				495								
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Glu	Cys	Ile	Phe	Gln	Pro	Ile	Phe	Leu	Leu	Ser	Gly	Tyr	Thr	Met	Trp	
			500					505					510			
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Ile	Arg	Ile	Asn	His	Ser	Leu	Gly	Ser	Leu	Asp	Ser	Pro	Pro	Thr	Cys	
		515					520					525				
gtc	ctt	cct	gat	tct	gtg	gtg	aag	cca	ctg	cct	cca	tcc	agt	gtg	aaa	1632
Val	Leu	Pro	Asp	Ser	Val	Val	Lys	Pro	Leu	Pro	Pro	Ser	Ser	Val	Lys	
	530					535					540					
gca	gaa	att	act	ata	aac	att	gga	tta	ttg	aaa	ata	tct	tgg	gaa	aag	1680
Ala	Glu	Ile	Thr	Ile	Asn	Ile	Gly	Leu	Leu	Lys	Ile	Ser	Trp	Glu	Lys	
545					550					555					560	
cca	gtc	ttt	cca	gag	aat	aac	ctt	caa	ttc	cag	att	cgc	tat	ggg	tta	1728
Pro	Val	Phe	Pro	Glu	Asn	Asn	Leu	Gln	Phe	Gln	Ile	Arg	Tyr	Gly	Leu	
				565					570					575		
agt	gga	aaa	gaa	gta	caa	tgg	aag	atg	tat	gag	gtt	tat	gat	gca	aaa	1776
Ser	Gly	Lys	Glu	Val	Gln	Trp	Lys	Met	Tyr	Glu	Val	Tyr	Asp	Ala	Lys	
			580					585					590			
tca	aaa	tct	gtc	agt	ctc	cca	gtt	cca	gac	ttg	tgt	gca	gtc	tat	gct	1824
Ser	Lys	Ser	Val	Ser	Leu	Pro	Val	Pro	Asp	Leu	Cys	Ala	Val	Tyr	Ala	
		595					600					605				
gtt	cag	gtg	cgc	tgt	aag	agg	cta	gat	gga	ctg	gga	tat	tgg	agt	aat	1872
Val	Gln	Val	Arg	Cys	Lys	Arg	Leu	Asp	Gly	Leu	Gly	Tyr	Trp	Ser	Asn	
	610					615					620					
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Trp	Ser	Asn	Pro	Ala	Tyr	Thr	Val	Val	Met	Asp	Ile	Lys	Val	Pro	Met	
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Arg	Gly	Pro	Glu	Phe	Trp	Arg	Ile	Ile	Asn	Gly	Asp	Thr	Met	Lys	Lys	
				645					650					655		
gag	aaa	aat	gtc	act	tta	ctt	tgg	aag	ccc	ctg	atg	aaa	aat	gac	tca	2016
Glu	Lys	Asn	Val	Thr	Leu	Leu	Trp	Lys	Pro	Leu	Met	Lys	Asn	Asp	Ser	
			660					665					670			
ttg	tgc	agt	gtt	cag	aga	tat	gtg	ata	aac	cat	cat	act	tcc	tgc	aat	2064
Leu	Cys	Ser	Val	Gln	Arg	Tyr	Val	Ile	Asn	His	His	Thr	Ser	Cys	Asn	
		675					680					685				
gga	aca	tgg	tca	gaa	gat	gtg	gga	aat	cac	acg	aaa	ttc	act	ttc	ctg	2112
Gly	Thr	Trp	Ser	Glu	Asp	Val	Gly	Asn	His	Thr	Lys	Phe	Thr	Phe	Leu	
	690					695					700					
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Trp	Thr	Glu	Gln	Ala	His	Thr	Val	Thr	Val	Leu	Ala	Ile	Asn	Ser	Ile	
705					710					715					720	
ggg	gct	tct	gtt	gca	aat	ttt	aat	tta	acc	ttt	tca	tgg	cct	atg	agc	2208
Gly	Ala	Ser	Val	Ala	Asn	Phe	Asn	Leu	Thr	Phe	Ser	Trp	Pro	Met	Ser	
				725					730					735		
aaa	gta	aat	atc	gtg	cag	tca	ctc	agt	gct	tat	cct	tta	aac	agc	agt	2256

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Lys	Val	Asn	Ile	Val	Gln	Ser	Leu	Ser	Ala	Tyr	Pro	Leu	Asn	Ser	Ser	
			740					745					750			
tgt	gtg	att	gtt	tcc	tgg	ata	cta	tca	ccc	agt	gat	tac	aag	cta	atg	2304
Cys	Val	Ile	Val	Ser	Trp	Ile	Leu	Ser	Pro	Ser	Asp	Tyr	Lys	Leu	Met	
		755					760					765				
tat	ttt	att	att	gag	tgg	aaa	aat	ctt	aat	gaa	gat	ggg	gaa	ata	aaa	2352
Tyr	Phe	Ile	Ile	Glu	Trp	Lys	Asn	Leu	Asn	Glu	Asp	Gly	Glu	Ile	Lys	
	770					775					780					
tgg	ctt	aga	atc	tct	tca	tct	gtt	aag	aag	tat	tat	atc	cat	gat	cat	2400
Trp	Leu	Arg	Ile	Ser	Ser	Ser	Val	Lys	Lys	Tyr	Tyr	Ile	His	Asp	His	
					790					795					800	
ttt	atc	ccc	att	gag	aag	tac	cag	ttc	agt	ctt	tac	cca	ata	ttt	atg	2448
Phe	Ile	Pro	Ile	Glu	Lys	Tyr	Gln	Phe	Ser	Leu	Tyr	Pro	Ile	Phe	Met	
				805					810					815		
gaa	gga	gtg	gga	aaa	cca	aag	ata	att	aat	agt	ttc	act	caa	gat	gat	2496
Glu	Gly	Val	Gly	Lys	Pro	Lys	Ile	Ile	Asn	Ser	Phe	Thr	Gln	Asp	Asp	
			820					825					830			
att	gaa	aaa	cac	cag	agt	gat	gca	ggg	tta	tat	gta	att	gtg	cca	gta	2544
Ile	Glu	Lys	His	Gln	Ser	Asp	Ala	Gly	Leu	Tyr	Val	Ile	Val	Pro	Val	
		835					840					845				
att	att	tcc	tct	tcc	atc	tta	ttg	ctt	gga	aca	tta	tta	ata	tca	cac	2592
Ile	Ile	Ser	Ser	Ser	Ile	Leu	Leu	Leu	Gly	Thr	Leu	Leu	Ile	Ser	His	
	850					855					860					
caa	aga	atg	aaa	aag	cta	ttt	tgg	gaa	gat	gtt	ccg	aac	ccc	aag	aat	2640
Gln	Arg	Met	Lys	Lys	Leu	Phe	Trp	Glu	Asp	Val	Pro	Asn	Pro	Lys	Asn	
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tgt	tcc	tgg	gca	caa	gga	ctt	aat	ttt	cag	aag	aga	acg	gac	att	ctt	2688
Cys	Ser	Trp	Ala	Gln	Gly	Leu	Asn	Phe	Gln	Lys	Arg	Thr	Asp	Ile	Leu	
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tga																2691

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<213> Homo sapiens

<400> 10

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Tyr	Val	Ile	Thr	Ala	Phe	Asn	Leu	Ser	Tyr	Pro	Ile	Thr	Pro	Trp	Arg
			20					25					30		

Phe	Lys	Leu	Ser	Cys	Met	Pro	Pro	Asn	Ser	Thr	Tyr	Asp	Tyr	Phe	Leu
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

35

40

45

Leu Pro Ala Gly Leu Ser Lys Asn Thr Ser Asn Ser Asn Gly His Tyr
 50 55 60

Glu Thr Ala Val Glu Pro Lys Phe Asn Ser Ser Gly Thr His Phe Ser
 65 70 75 80

Asn Leu Ser Lys Thr Thr Phe His Cys Cys Phe Arg Ser Glu Gln Asp
 85 90 95

Arg Asn Cys Ser Leu Cys Ala Asp Asn Ile Glu Gly Lys Thr Phe Val
 100 105 110

Ser Thr Val Asn Ser Leu Val Phe Gln Gln Ile Asp Ala Asn Trp Asn
 115 120 125

Ile Gln Cys Trp Leu Lys Gly Asp Leu Lys Leu Phe Ile Cys Tyr Val
 130 135 140

Glu Ser Leu Phe Lys Asn Leu Phe Arg Asn Tyr Asn Tyr Lys Val His
 145 150 155 160

Leu Leu Tyr Val Leu Pro Glu Val Leu Glu Asp Ser Pro Leu Val Pro
 165 170 175

Gln Lys Gly Ser Phe Gln Met Val His Cys Asn Cys Ser Val His Glu
 180 185 190

Cys Cys Glu Cys Leu Val Pro Val Pro Thr Ala Lys Leu Asn Asp Thr
 195 200 205

Leu Leu Met Cys Leu Lys Ile Thr Ser Gly Gly Val Ile Phe Gln Ser
 210 215 220

Pro Leu Met Ser Val Gln Pro Ile Asn Met Val Lys Pro Asp Pro Pro
 225 230 235 240

Leu Gly Leu His Met Glu Ile Thr Asp Asp Gly Asn Leu Lys Ile Ser
 245 250 255

Trp Ser Ser Pro Pro Leu Val Pro Phe Pro Leu Gln Tyr Gln Val Lys
 260 265 270

Tyr Ser Glu Asn Ser Thr Thr Val Ile Arg Glu Ala Asp Lys Ile Val
 275 280 285

FRAV20030005 US NP Sequence Listing.txt

Ser Ala Thr Ser Leu Leu Val Asp Ser Ile Leu Pro Gly Ser Ser Tyr
290 295 300

Glu Val Gln Val Arg Gly Lys Arg Leu Asp Gly Pro Gly Ile Trp Ser
305 310 315 320

Asp Trp Ser Thr Pro Arg Val Phe Thr Thr Gln Asp Val Ile Tyr Phe
325 330 335

Pro Pro Lys Ile Leu Thr Ser Val Gly Ser Asn Val Ser Phe His Cys
340 345 350

Ile Tyr Lys Lys Glu Asn Lys Ile Val Pro Ser Lys Glu Ile Val Trp
355 360 365

Trp Met Asn Leu Ala Glu Lys Ile Pro Gln Ser Gln Tyr Asp Val Val
370 375 380

Ser Asp His Val Ser Lys Val Thr Phe Phe Asn Leu Asn Glu Thr Lys
385 390 395 400

Pro Arg Gly Lys Phe Thr Tyr Asp Ala Val Tyr Cys Cys Asn Glu His
405 410 415

Glu Cys His His Arg Tyr Ala Glu Leu Tyr Val Ile Asp Val Asn Ile
420 425 430

Asn Ile Ser Cys Glu Thr Asp Gly Tyr Leu Thr Lys Met Thr Cys Arg
435 440 445

Trp Ser Thr Ser Thr Ile Gln Ser Leu Ala Glu Ser Thr Leu Gln Leu
450 455 460

Arg Tyr His Arg Ser Ser Leu Tyr Cys Ser Asp Ile Pro Ser Ile His
465 470 475 480

Pro Ile Ser Glu Pro Lys Asp Cys Tyr Leu Gln Ser Asp Gly Phe Tyr
485 490 495

Glu Cys Ile Phe Gln Pro Ile Phe Leu Leu Ser Gly Tyr Thr Met Trp
500 505 510

Ile Arg Ile Asn His Ser Leu Gly Ser Leu Asp Ser Pro Pro Thr Cys
515 520 525

Val Leu Pro Asp Ser Val Val Lys Pro Leu Pro Pro Ser Ser Val Lys
530 535 540

FRAV20030005 US NP Sequence Listing.txt

Ala Glu Ile Thr Ile Asn Ile Gly Leu Leu Lys Ile Ser Trp Glu Lys
545 550 555 560

Pro Val Phe Pro Glu Asn Asn Leu Gln Phe Gln Ile Arg Tyr Gly Leu
565 570 575

Ser Gly Lys Glu Val Gln Trp Lys Met Tyr Glu Val Tyr Asp Ala Lys
580 585 590

Ser Lys Ser Val Ser Leu Pro Val Pro Asp Leu Cys Ala Val Tyr Ala
595 600 605

Val Gln Val Arg Cys Lys Arg Leu Asp Gly Leu Gly Tyr Trp Ser Asn
610 615 620

Trp Ser Asn Pro Ala Tyr Thr Val Val Met Asp Ile Lys Val Pro Met
625 630 635 640

Arg Gly Pro Glu Phe Trp Arg Ile Ile Asn Gly Asp Thr Met Lys Lys
645 650 655

Glu Lys Asn Val Thr Leu Leu Trp Lys Pro Leu Met Lys Asn Asp Ser
660 665 670

Leu Cys Ser Val Gln Arg Tyr Val Ile Asn His His Thr Ser Cys Asn
675 680 685

Gly Thr Trp Ser Glu Asp Val Gly Asn His Thr Lys Phe Thr Phe Leu
690 695 700

Trp Thr Glu Gln Ala His Thr Val Thr Val Leu Ala Ile Asn Ser Ile
705 710 715 720

Gly Ala Ser Val Ala Asn Phe Asn Leu Thr Phe Ser Trp Pro Met Ser
725 730 735

Lys Val Asn Ile Val Gln Ser Leu Ser Ala Tyr Pro Leu Asn Ser Ser
740 745 750

Cys Val Ile Val Ser Trp Ile Leu Ser Pro Ser Asp Tyr Lys Leu Met
755 760 765

Tyr Phe Ile Ile Glu Trp Lys Asn Leu Asn Glu Asp Gly Glu Ile Lys
770 775 780

Trp Leu Arg Ile Ser Ser Ser Val Lys Lys Tyr Tyr Ile His Asp His
785 790 795 800

FRAV20030005 US NP Sequence Listing.txt

Phe Ile Pro Ile Glu Lys Tyr Gln Phe Ser Leu Tyr Pro Ile Phe Met
805 810 815

Glu Gly Val Gly Lys Pro Lys Ile Ile Asn Ser Phe Thr Gln Asp Asp
820 825 830

Ile Glu Lys His Gln Ser Asp Ala Gly Leu Tyr Val Ile Val Pro Val
835 840 845

Ile Ile Ser Ser Ser Ile Leu Leu Leu Gly Thr Leu Leu Ile Ser His
850 855 860

Gln Arg Met Lys Lys Leu Phe Trp Glu Asp Val Pro Asn Pro Lys Asn
865 870 875 880

Cys Ser Trp Ala Gln Gly Leu Asn Phe Gln Lys Arg Thr Asp Ile Leu
885 890 895

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<212> DNA

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<223> OBR LUC

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1 5 10 15

48

FRAV20030005 US NP Sequence Listing.txt

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Leu	Leu	Met	Leu	Phe	His	Leu	Gly	Leu	Gln	Ala	Ser	Ile	Ser	Ala	Arg	
			20					25					30			
cag	gag	cag	aag	ctt	atc	tcg	gag	gag	gac	ctg	acg	cgt	tat	cca	att	144
Gln	Glu	Gln	Lys	Leu	Ile	Ser	Glu	Glu	Asp	Leu	Thr	Arg	Tyr	Pro	Ile	
		35					40					45				
act	cct	tgg	aga	ttt	aag	ttg	tct	tgc	atg	cca	cca	aat	tca	acc	tat	192
Thr	Pro	Trp	Arg	Phe	Lys	Leu	Ser	Cys	Met	Pro	Pro	Asn	Ser	Thr	Tyr	
	50					55					60					
gac	tac	ttc	ctt	ttg	cct	gct	gga	ctc	tca	aag	aat	act	tca	aat	tcg	240
Asp	Tyr	Phe	Leu	Leu	Pro	Ala	Gly	Leu	Ser	Lys	Asn	Thr	Ser	Asn	Ser	
65					70					75					80	
aat	gga	cat	tat	gag	aca	gct	gtt	gaa	cct	aag	ttt	aat	tca	agt	ggt	288
Asn	Gly	His	Tyr	Glu	Thr	Ala	Val	Glu	Pro	Lys	Phe	Asn	Ser	Ser	Gly	
				85					90					95		
act	cac	ttt	tct	aac	tta	tcc	aaa	aca	act	ttc	cac	tgt	tgc	ttt	cgg	336
Thr	His	Phe	Ser	Asn	Leu	Ser	Lys	Thr	Thr	Phe	His	Cys	Cys	Phe	Arg	
			100					105					110			
agt	gag	caa	gat	aga	aac	tgc	tcc	tta	tgt	gca	gac	aac	att	gaa	gga	384
Ser	Glu	Gln	Asp	Arg	Asn	Cys	Ser	Leu	Cys	Ala	Asp	Asn	Ile	Glu	Gly	
		115					120					125				
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Thr	Thr	Phe	Val	Ser	Thr	Val	Asn	Ser	Leu	Val	Phe	Gln	Gln	Ile	Asp	
	130					135					140					
gca	aac	tgg	aac	ata	cag	tgc	tgg	cta	aaa	gga	gac	tta	aaa	tta	ttc	480
Ala	Asn	Trp	Asn	Ile	Gln	Cys	Trp	Leu	Lys	Gly	Asp	Leu	Lys	Leu	Phe	
145					150					155					160	
atc	tgt	tat	gtg	gag	tca	tta	ttt	aag	aat	cta	ttc	agg	aat	tat	aac	528
Ile	Cys	Tyr	Val	Glu	Ser	Leu	Phe	Lys	Asn	Leu	Phe	Arg	Asn	Tyr	Asn	
				165					170					175		
tat	aag	gtc	cat	ctt	tta	tat	gtt	ctg	cct	gaa	gtg	tta	gaa	gat	tca	576
Tyr	Lys	Val	His	Leu	Leu	Tyr	Val	Leu	Pro	Glu	Val	Leu	Glu	Asp	Ser	
			180					185					190			
cct	ctg	gtt	ccc	caa	aaa	ggc	agt	ttt	cag	atg	gtt	cac	tgc	aat	tgc	624
Pro	Leu	Val	Pro	Gln	Lys	Gly	Ser	Phe	Gln	Met	Val	His	Cys	Asn	Cys	
		195					200					205				
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Ser	Val	His	Glu	Cys	Cys	Glu	Cys	Leu	Val	Pro	Val	Pro	Thr	Ala	Lys	
	210					215					220					
ctc	aac	gac	act	ctc	ctt	atg	tgt	ttg	aaa	atc	aca	tct	ggt	gga	gta	720
Leu	Asn	Asp	Thr	Leu	Leu	Met	Cys	Leu	Lys	Ile	Thr	Ser	Gly	Gly	Val	
225					230					235					240	
att	ttc	cgg	tca	cct	cta	atg	tca	gtt	cag	ccc	ata	aat	atg	gtg	aag	768
Ile	Phe	Arg	Ser	Pro	Leu	Met	Ser	Val	Gln	Pro	Ile	Asn	Met	Val	Lys	
				245					250					255		
cct	gat	cca	cca	tta	ggt	ttg	cat	atg	gaa	atc	aca	gat	gat	ggt	aat	816
Pro	Asp	Pro	Pro	Leu	Gly	Leu	His	Met	Glu	Ile	Thr	Asp	Asp	Gly	Asn	
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		275					280					285				
tat	caa	gtg	aaa	tat	tca	gag	aat	tct	aca	aca	gtt	atc	aga	gaa	gct	912
Tyr	Gln	Val	Lys	Tyr	Ser	Glu	Asn	Ser	Thr	Thr	Val	Ile	Arg	Glu	Ala	
	290					295					300					
gac	aag	att	gtc	tca	gct	aca	tcc	ctg	cta	gta	gac	agt	ata	ctt	cct	960
Asp	Lys	Ile	Val	Ser	Ala	Thr	Ser	Leu	Leu	Val	Asp	Ser	Ile	Leu	Pro	
305					310					315					320	
ggg	tct	tcg	tat	gag	gtt	cag	gtg	agg	ggc	aag	aga	ctg	gat	ggc	cca	1008
Gly	Ser	Ser	Tyr	Glu	Val	Gln	Val	Arg	Gly	Lys	Arg	Leu	Asp	Gly	Pro	
				325					330					335		
gga	atc	tgg	agt	gac	tgg	agt	act	cct	cgt	gtc	ttt	acc	aca	caa	gat	1056
Gly	Ile	Trp	Ser	Asp	Trp	Ser	Thr	Pro	Arg	Val	Phe	Thr	Thr	Gln	Asp	
			340					345					350			
gtc	ata	tac	ttt	cca	cct	aaa	att	ctg	aca	agt	gtt	ggg	tct	aat	gtt	1104
Val	Ile	Tyr	Phe	Pro	Pro	Lys	Ile	Leu	Thr	Ser	Val	Gly	Ser	Asn	Val	
		355					360					365				
tct	ttt	cac	tgc	atc	tat	aag	aag	gaa	aac	aag	att	gtt	ccc	tca	aaa	1152
Ser	Phe	His	Cys	Ile	Tyr	Lys	Lys	Glu	Asn	Lys	Ile	Val	Pro	Ser	Lys	
	370					375					380					
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Glu	Ile	Val	Trp	Trp	Met	Asn	Leu	Ala	Glu	Lys	Ile	Pro	Gln	Ser	Gln	
385					390					395					400	
tat	gat	gtt	gtg	agt	gat	cat	gtt	agc	aaa	gtt	act	ttt	ttc	aat	ctg	1248
Tyr	Asp	Val	Val	Ser	Asp	His	Val	Ser	Lys	Val	Thr	Phe	Phe	Asn	Leu	
				405					410					415		
aat	gaa	acc	aaa	cct	cga	gga	aag	ttt	acc	tat	gat	gca	gtg	tac	tgc	1296
Asn	Glu	Thr	Lys	Pro	Arg	Gly	Lys	Phe	Thr	Tyr	Asp	Ala	Val	Tyr	Cys	
			420					425					430			
tgc	aat	gaa	cat	gaa	tgc	cat	cat	cgc	tat	gct	gaa	tta	tat	gtg	att	1344
Cys	Asn	Glu	His	Glu	Cys	His	His	Arg	Tyr	Ala	Glu	Leu	Tyr	Val	Ile	
		435					440					445				
gat	gtc	aat	atc	aat	atc	tca	tgt	gaa	act	gat	ggg	tac	tta	act	aaa	1392
Asp	Val	Asn	Ile	Asn	Ile	Ser	Cys	Glu	Thr	Asp	Gly	Tyr	Leu	Thr	Lys	
	450					455					460					
atg	act	tgc	aga	tgg	tca	acc	agt	aca	atc	cag	tca	ctt	gcg	gaa	agc	1440
Met	Thr	Cys	Arg	Trp	Ser	Thr	Ser	Thr	Ile	Gln	Ser	Leu	Ala	Glu	Ser	
465				470						475					480	
act	ttg	caa	ttg	agg	tat	cat	agg	agc	agc	ctt	tac	tgt	tct	gat	att	1488
Thr	Leu	Gln	Leu	Arg	Tyr	His	Arg	Ser	Ser	Leu	Tyr	Cys	Ser	Asp	Ile	
				485				490						495		
cca	tct	att	cat	ccc	ata	tct	gag	ccc	aaa	gat	tgc	tat	ttg	cag	agt	1536
Pro	Ser	Ile	His	Pro	Ile	Ser	Glu	Pro	Lys	Asp	Cys	Tyr	Leu	Gln	Ser	
			500					505					510			
gat	ggt	ttt	tat	gaa	tgc	att	ttc	cag	cca	atc	ttc	cta	tta	tct	ggc	1584
Asp	Gly	Phe	Tyr	Glu	Cys	Ile	Phe	Gln	Pro	Ile	Phe	Leu	Leu	Ser	Gly	

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515			520			525										
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Tyr	Thr	Met	Trp	Ile	Arg	Ile	Asn	His	Ser	Leu	Gly	Ser	Leu	Asp	Ser	
	530					535					540					
cca	cca	aca	tgt	gtc	ctt	cct	gat	tct	gtg	gtg	aag	cca	ctg	cct	cca	1680
Pro	Pro	Thr	Cys	Val	Leu	Pro	Asp	Ser	Val	Val	Lys	Pro	Leu	Pro	Pro	
545					550				555						560	
tcc	agt	gtg	aaa	gca	gaa	att	act	ata	aac	att	gga	tta	ttg	aaa	ata	1728
Ser	Ser	Val	Lys	Ala	Glu	Ile	Thr	Ile	Asn	Ile	Gly	Leu	Leu	Lys	Ile	
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tct	tgg	gaa	aag	cca	gtc	ttt	cca	gag	aat	aac	ctt	caa	ttc	cag	att	1776
Ser	Trp	Glu	Lys	Pro	Val	Phe	Pro	Glu	Asn	Asn	Leu	Gln	Phe	Gln	Ile	
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cgc	tat	ggg	tta	agt	gga	aaa	gaa	gta	caa	tgg	aag	atg	tat	gag	gtt	1824
Arg	Tyr	Gly	Leu	Ser	Gly	Lys	Glu	Val	Gln	Trp	Lys	Met	Tyr	Glu	Val	
		595					600					605				
tat	gat	gca	aaa	tca	aaa	tct	gtc	agt	ctc	cca	gtt	cca	gac	ttg	tgt	1872
Tyr	Asp	Ala	Lys	Ser	Lys	Ser	Val	Ser	Leu	Pro	Val	Pro	Asp	Leu	Cys	
	610					615					620					
gca	gtc	tat	gct	gtt	cag	gtg	cgc	tgt	aag	agg	cta	gat	gga	ctg	gga	1920
Ala	Val	Tyr	Ala	Val	Gln	Val	Arg	Cys	Lys	Arg	Leu	Asp	Gly	Leu	Gly	
625					630				635						640	
tat	tgg	agt	aat	tgg	agc	aat	cca	gcc	tac	aca	gtt	gtc	atg	gat	ata	1968
Tyr	Trp	Ser	Asn	Trp	Ser	Asn	Pro	Ala	Tyr	Thr	Val	Val	Met	Asp	Ile	
				645					650					655		
aaa	gtt	cct	atg	aga	gga	cct	gaa	ttt	tgg	aga	ata	att	aat	gga	gat	2016
Lys	Val	Pro	Met	Arg	Gly	Pro	Glu	Phe	Trp	Arg	Ile	Ile	Asn	Gly	Asp	
			660					665					670			
act	atg	aaa	aag	gag	aaa	aat	gtc	act	tta	ctt	tgg	aag	ccc	ctg	atg	2064
Thr	Met	Lys	Lys	Glu	Lys	Asn	Val	Thr	Leu	Leu	Trp	Lys	Pro	Leu	Met	
		675					680					685				
aaa	aat	gac	tca	ttg	tgc	agt	gtt	cag	aga	tat	gtg	ata	aac	cat	cat	2112
Lys	Asn	Asp	Ser	Leu	Cys	Ser	Val	Gln	Arg	Tyr	Val	Ile	Asn	His	His	
	690					695					700					
act	tcc	tgc	aat	gga	aca	tgg	tca	gaa	gat	gtg	gga	aat	cac	acg	aaa	2160
Thr	Ser	Cys	Asn	Gly	Thr	Trp	Ser	Glu	Asp	Val	Gly	Asn	His	Thr	Lys	
705				710						715					720	
ttc	act	ttc	ctg	tgg	aca	gag	caa	gca	cat	act	gtt	acg	gtt	ctg	gcc	2208
Phe	Thr	Phe	Leu	Trp	Thr	Glu	Gln	Ala	His	Thr	Val	Thr	Val	Leu	Ala	
				725					730					735		
atc	aat	tca	att	ggg	gct	tct	gtt	gca	aat	ttt	aat	tta	acc	ttt	tca	2256
Ile	Asn	Ser	Ile	Gly	Ala	Ser	Val	Ala	Asn	Phe	Asn	Leu	Thr	Phe	Ser	
			740					745					750			
tgg	cct	atg	agc	aaa	gta	aat	atc	gtg	cag	tca	ctc	agt	gct	tat	cct	2304
Trp	Pro	Met	Ser	Lys	Val	Asn	Ile	Val	Gln	Ser	Leu	Ser	Ala	Tyr	Pro	
		755					760					765				
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Leu	Asn	Ser	Ser	Cys	Val	Ile	Val	Ser	Trp	Ile	Leu	Ser	Pro	Ser	Asp	
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Tyr	Lys	Leu	Met	Tyr	Phe	Ile	Ile	Glu	Trp	Lys	Asn	Leu	Asn	Glu	Asp	
785					790					795					800	
ggt	gaa	ata	aaa	tgg	ctt	aga	atc	tct	tca	tct	ggt	aag	aag	tat	tat	2448
Gly	Glu	Ile	Lys	Trp	Leu	Arg	Ile	Ser	Ser	Ser	Val	Lys	Lys	Tyr	Tyr	
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atc	cat	gat	cat	ttt	atc	ccc	att	gag	aag	tac	cag	ttc	agt	ctt	tac	2496
Ile	His	Asp	His	Phe	Ile	Pro	Ile	Glu	Lys	Tyr	Gln	Phe	Ser	Leu	Tyr	
			820					825					830			
cca	ata	ttt	atg	gaa	gga	gtg	gga	aaa	cca	aag	ata	att	aat	agt	ttc	2544
Pro	Ile	Phe	Met	Glu	Gly	Val	Gly	Lys	Pro	Lys	Ile	Ile	Asn	Ser	Phe	
		835					840					845				
act	caa	gat	gat	att	gaa	aaa	cac	cag	agt	gat	gca	ggt	tta	tat	gta	2592
Thr	Gln	Asp	Asp	Ile	Glu	Lys	His	Gln	Ser	Asp	Ala	Gly	Leu	Tyr	Val	
	850					855					860					
att	gtg	cca	gta	att	att	tcc	tct	tcc	atc	tta	ttg	ctt	gga	aca	tta	2640
Ile	Val	Pro	Val	Ile	Ile	Ser	Ser	Ser	Ile	Leu	Leu	Leu	Gly	Thr	Leu	
865					870					875					880	
tta	ata	tca	cac	caa	aga	atg	aaa	aag	cta	ttt	tgg	gaa	gat	gtt	ccg	2688
Leu	Ile	Ser	His	Gln	Arg	Met	Lys	Lys	Leu	Phe	Trp	Glu	Asp	Val	Pro	
				885					890					895		
aac	ccc	aag	aat	tgt	tcc	tgg	gca	caa	gga	ctt	aat	ttt	cag	aag	aga	2736
Asn	Pro	Lys	Asn	Cys	Ser	Trp	Ala	Gln	Gly	Leu	Asn	Phe	Gln	Lys	Arg	
			900					905					910			
acg	gac	att	ctg	gat	cca	ccg	gct	aga	gcc	acc	atg	acc	agc	aag	gtg	2784
Thr	Asp	Ile	Leu	Asp	Pro	Pro	Ala	Arg	Ala	Thr	Met	Thr	Ser	Lys	Val	
		915					920					925				
tac	gac	ccc	gag	cag	agg	aag	agg	atg	atc	acc	ggc	ccc	cag	tgg	tgg	2832
Tyr	Asp	Pro	Glu	Gln	Arg	Lys	Arg	Met	Ile	Thr	Gly	Pro	Gln	Trp	Trp	
	930					935					940					
gcc	agg	tgc	aag	cag	atg	aac	gtg	ctg	gac	agc	ttc	atc	aac	tac	tac	2880
Ala	Arg	Cys	Lys	Gln	Met	Asn	Val	Leu	Asp	Ser	Phe	Ile	Asn	Tyr	Tyr	
945					950					955					960	
gac	agc	gag	aag	cac	gcc	gag	aac	gcc	gtg	atc	ttc	ctg	cac	ggc	aac	2928
Asp	Ser	Glu	Lys	His	Ala	Glu	Asn	Ala	Val	Ile	Phe	Leu	His	Gly	Asn	
				965					970					975		
gcc	gct	agc	agc	tac	ctg	tgg	agg	cac	gtg	gtg	ccc	cac	atc	gag	ccc	2976
Ala	Ala	Ser	Ser	Tyr	Leu	Trp	Arg	His	Val	Val	Pro	His	Ile	Glu	Pro	
			980					985					990			
gtg	gcc	agg	tgc	atc	atc	ccc	gat	ctg	atc	ggc	atg	ggc	aag	agc	ggc	3024
Val	Ala	Arg	Cys	Ile	Ile	Pro	Asp	Leu	Ile	Gly	Met	Gly	Lys	Ser	Gly	
		995					1000					1005				
aag	agc	ggc	aac	ggc	agc	tac	agg	ctg	ctg	gac	cac	tac	aag	tac		3069
Lys	Ser	Gly	Asn	Gly	Ser	Tyr	Arg	Leu	Leu	Asp	His	Tyr	Lys	Tyr		
	1010					1015					1020					

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ctg Leu	acc Thr 1025	gcc Ala	tgg Trp	ttc Phe	gag Glu	ctc Leu 1030	ctg Leu	aac Asn	ctg Leu	ccc Pro	aag Lys 1035	aag Lys	atc Ile	atc Ile	3114
ttc Phe	gtg Val 1040	ggc Gly	cac His	gac Asp	tgg Trp	ggc Gly 1045	gcc Ala	tgc Cys	ctg Leu	gcc Ala	ttc Phe 1050	cac His	tac Tyr	agc Ser	3159
tac Tyr	gag Glu 1055	cac His	cag Gln	gac Asp	aag Lys	atc Ile 1060	aag Lys	gcc Ala	atc Ile	gtg Val	cac His 1065	gcc Ala	gag Glu	agc Ser	3204
gtg Val	gtg Val 1070	gac Asp	gtg Val	atc Ile	gag Glu	agc Ser 1075	tgg Trp	gac Asp	gag Glu	tgg Trp	cca Pro 1080	gac Asp	atc Ile	gag Glu	3249
gag Glu	gac Asp 1085	atc Ile	gcc Ala	ctg Leu	atc Ile	aag Lys 1090	agc Ser	gag Glu	gag Glu	ggc Gly	gag Glu 1095	aag Lys	atg Met	gtg Val	3294
ctg Leu	gag Glu 1100	aac Asn	aac Asn	ttc Phe	ttc Phe	gtg Val 1105	gag Glu	acc Thr	atg Met	ctg Leu	ccc Pro 1110	agc Ser	aag Lys	atc Ile	3339
atg Met	aga Arg 1115	aag Lys	ctg Leu	gag Glu	ccc Pro	gag Glu 1120	gag Glu	ttc Phe	gcc Ala	gcc Ala	tac Tyr 1125	ctg Leu	gag Glu	ccc Pro	3384
ttc Phe	aag Lys 1130	gag Glu	aag Lys	ggc Gly	gag Glu	gtg Val 1135	aga Arg	aga Arg	ccc Pro	acc Thr	ctg Leu 1140	agc Ser	tgg Trp	ccc Pro	3429
aga Arg	gag Glu 1145	atc Ile	ccc Pro	ctg Leu	gtg Val	aag Lys 1150	ggc Gly	ggc Gly	aag Lys	ccc Pro	gac Asp 1155	gtg Val	gtg Val	cag Gln	3474
atc Ile	gtg Val 1160	aga Arg	aac Asn	tac Tyr	aac Asn	gcc Ala 1165	tac Tyr	ctg Leu	aga Arg	gcc Ala	agc Ser 1170	gac Asp	gac Asp	ctg Leu	3519
ccc Pro	aag Lys 1175	atg Met	ttc Phe	atc Ile	gag Glu	agc Ser 1180	gac Asp	ccc Pro	ggc Gly	ttc Phe	ttc Phe 1185	agc Ser	aac Asn	gcc Ala	3564
atc Ile	gtg Val 1190	gag Glu	ggc Gly	gcc Ala	aag Lys	aag Lys 1195	ttc Phe	ccc Pro	aac Asn	acc Thr	gag Glu 1200	ttc Phe	gtg Val	aag Lys	3609
gtg Val	aag Lys 1205	ggc Gly	ctg Leu	cac His	ttc Phe	agc Ser 1210	cag Gln	gag Glu	gac Asp	gcc Ala	ccc Pro 1215	gac Asp	gag Glu	atg Met	3654
ggc Gly	aag Lys 1220	tac Tyr	atc Ile	aag Lys	agc Ser	ttc Phe 1225	gtg Val	gag Glu	aga Arg	gtg Val	ctg Leu 1230	aag Lys	aac Asn	gag Glu	3699
cag Gln	taa														3705

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Leu Leu Met Leu Phe His Leu Gly Leu Gln Ala Ser Ile Ser Ala Arg
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Gln Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Thr Arg Tyr Pro Ile
35 40 45

Thr Pro Trp Arg Phe Lys Leu Ser Cys Met Pro Pro Asn Ser Thr Tyr
50 55 60

Asp Tyr Phe Leu Leu Pro Ala Gly Leu Ser Lys Asn Thr Ser Asn Ser
65 70 75 80

Asn Gly His Tyr Glu Thr Ala Val Glu Pro Lys Phe Asn Ser Ser Gly
85 90 95

Thr His Phe Ser Asn Leu Ser Lys Thr Thr Phe His Cys Cys Phe Arg
100 105 110

Ser Glu Gln Asp Arg Asn Cys Ser Leu Cys Ala Asp Asn Ile Glu Gly
115 120 125

Thr Thr Phe Val Ser Thr Val Asn Ser Leu Val Phe Gln Gln Ile Asp
130 135 140

Ala Asn Trp Asn Ile Gln Cys Trp Leu Lys Gly Asp Leu Lys Leu Phe
145 150 155 160

Ile Cys Tyr Val Glu Ser Leu Phe Lys Asn Leu Phe Arg Asn Tyr Asn
165 170 175

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Tyr Lys Val His Leu Leu Tyr Val Leu Pro Glu Val Leu Glu Asp Ser
 180 185 190
 Pro Leu Val Pro Gln Lys Gly Ser Phe Gln Met Val His Cys Asn Cys
 195 200 205
 Ser Val His Glu Cys Cys Glu Cys Leu Val Pro Val Pro Thr Ala Lys
 210 215 220
 Leu Asn Asp Thr Leu Leu Met Cys Leu Lys Ile Thr Ser Gly Gly Val
 225 230 235 240
 Ile Phe Arg Ser Pro Leu Met Ser Val Gln Pro Ile Asn Met Val Lys
 245 250 255
 Pro Asp Pro Pro Leu Gly Leu His Met Glu Ile Thr Asp Asp Gly Asn
 260 265 270
 Leu Lys Ile Ser Trp Ser Ser Pro Pro Leu Val Pro Phe Pro Leu Gln
 275 280 285
 Tyr Gln Val Lys Tyr Ser Glu Asn Ser Thr Thr Val Ile Arg Glu Ala
 290 295 300
 Asp Lys Ile Val Ser Ala Thr Ser Leu Leu Val Asp Ser Ile Leu Pro
 305 310 315 320
 Gly Ser Ser Tyr Glu Val Gln Val Arg Gly Lys Arg Leu Asp Gly Pro
 325 330 335
 Gly Ile Trp Ser Asp Trp Ser Thr Pro Arg Val Phe Thr Thr Gln Asp
 340 345 350
 Val Ile Tyr Phe Pro Pro Lys Ile Leu Thr Ser Val Gly Ser Asn Val
 355 360 365
 Ser Phe His Cys Ile Tyr Lys Lys Glu Asn Lys Ile Val Pro Ser Lys
 370 375 380
 Glu Ile Val Trp Trp Met Asn Leu Ala Glu Lys Ile Pro Gln Ser Gln
 385 390 395 400
 Tyr Asp Val Val Ser Asp His Val Ser Lys Val Thr Phe Phe Asn Leu
 405 410 415
 Asn Glu Thr Lys Pro Arg Gly Lys Phe Thr Tyr Asp Ala Val Tyr Cys
 420 425 430

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Cys Asn Glu His Glu Cys His His Arg Tyr Ala Glu Leu Tyr Val Ile
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 Asp Val Asn Ile Asn Ile Ser Cys Glu Thr Asp Gly Tyr Leu Thr Lys
 450 455 460
 Met Thr Cys Arg Trp Ser Thr Ser Thr Ile Gln Ser Leu Ala Glu Ser
 465 470 475 480
 Thr Leu Gln Leu Arg Tyr His Arg Ser Ser Leu Tyr Cys Ser Asp Ile
 485 490 495
 Pro Ser Ile His Pro Ile Ser Glu Pro Lys Asp Cys Tyr Leu Gln Ser
 500 505 510
 Asp Gly Phe Tyr Glu Cys Ile Phe Gln Pro Ile Phe Leu Leu Ser Gly
 515 520 525
 Tyr Thr Met Trp Ile Arg Ile Asn His Ser Leu Gly Ser Leu Asp Ser
 530 535 540
 Pro Pro Thr Cys Val Leu Pro Asp Ser Val Val Lys Pro Leu Pro Pro
 545 550 555 560
 Ser Ser Val Lys Ala Glu Ile Thr Ile Asn Ile Gly Leu Leu Lys Ile
 565 570 575
 Ser Trp Glu Lys Pro Val Phe Pro Glu Asn Asn Leu Gln Phe Gln Ile
 580 585 590
 Arg Tyr Gly Leu Ser Gly Lys Glu Val Gln Trp Lys Met Tyr Glu Val
 595 600 605
 Tyr Asp Ala Lys Ser Lys Ser Val Ser Leu Pro Val Pro Asp Leu Cys
 610 615 620
 Ala Val Tyr Ala Val Gln Val Arg Cys Lys Arg Leu Asp Gly Leu Gly
 625 630 635 640
 Tyr Trp Ser Asn Trp Ser Asn Pro Ala Tyr Thr Val Val Met Asp Ile
 645 650 655
 Lys Val Pro Met Arg Gly Pro Glu Phe Trp Arg Ile Ile Asn Gly Asp
 660 665 670
 Thr Met Lys Lys Glu Lys Asn Val Thr Leu Leu Trp Lys Pro Leu Met

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675

680

685

Lys Asn Asp Ser Leu Cys Ser Val Gln Arg Tyr Val Ile Asn His His
690 695 700

Thr Ser Cys Asn Gly Thr Trp Ser Glu Asp Val Gly Asn His Thr Lys
705 710 715 720

Phe Thr Phe Leu Trp Thr Glu Gln Ala His Thr Val Thr Val Leu Ala
725 730 735

Ile Asn Ser Ile Gly Ala Ser Val Ala Asn Phe Asn Leu Thr Phe Ser
740 745 750

Trp Pro Met Ser Lys Val Asn Ile Val Gln Ser Leu Ser Ala Tyr Pro
755 760 765

Leu Asn Ser Ser Cys Val Ile Val Ser Trp Ile Leu Ser Pro Ser Asp
770 775 780

Tyr Lys Leu Met Tyr Phe Ile Ile Glu Trp Lys Asn Leu Asn Glu Asp
785 790 795 800

Gly Glu Ile Lys Trp Leu Arg Ile Ser Ser Ser Val Lys Lys Tyr Tyr
805 810 815

Ile His Asp His Phe Ile Pro Ile Glu Lys Tyr Gln Phe Ser Leu Tyr
820 825 830

Pro Ile Phe Met Glu Gly Val Gly Lys Pro Lys Ile Ile Asn Ser Phe
835 840 845

Thr Gln Asp Asp Ile Glu Lys His Gln Ser Asp Ala Gly Leu Tyr Val
850 855 860

Ile Val Pro Val Ile Ile Ser Ser Ser Ile Leu Leu Leu Gly Thr Leu
865 870 875 880

Leu Ile Ser His Gln Arg Met Lys Lys Leu Phe Trp Glu Asp Val Pro
885 890 895

Asn Pro Lys Asn Cys Ser Trp Ala Gln Gly Leu Asn Phe Gln Lys Arg
900 905 910

Thr Asp Ile Leu Asp Pro Pro Ala Arg Ala Thr Met Thr Ser Lys Val
915 920 925

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Tyr Asp Pro Glu Gln Arg Lys Arg Met Ile Thr Gly Pro Gln Trp Trp
 930 935 940

 Ala Arg Cys Lys Gln Met Asn Val Leu Asp Ser Phe Ile Asn Tyr Tyr
 945 950 955 960

 Asp Ser Glu Lys His Ala Glu Asn Ala Val Ile Phe Leu His Gly Asn
 965 970 975

 Ala Ala Ser Ser Tyr Leu Trp Arg His Val Val Pro His Ile Glu Pro
 980 985 990

 Val Ala Arg Cys Ile Ile Pro Asp Leu Ile Gly Met Gly Lys Ser Gly
 995 1000 1005

 Lys Ser Gly Asn Gly Ser Tyr Arg Leu Leu Asp His Tyr Lys Tyr
 1010 1015 1020

 Leu Thr Ala Trp Phe Glu Leu Leu Asn Leu Pro Lys Lys Ile Ile
 1025 1030 1035

 Phe Val Gly His Asp Trp Gly Ala Cys Leu Ala Phe His Tyr Ser
 1040 1045 1050

 Tyr Glu His Gln Asp Lys Ile Lys Ala Ile Val His Ala Glu Ser
 1055 1060 1065

 Val Val Asp Val Ile Glu Ser Trp Asp Glu Trp Pro Asp Ile Glu
 1070 1075 1080

 Glu Asp Ile Ala Leu Ile Lys Ser Glu Glu Gly Glu Lys Met Val
 1085 1090 1095

 Leu Glu Asn Asn Phe Phe Val Glu Thr Met Leu Pro Ser Lys Ile
 1100 1105 1110

 Met Arg Lys Leu Glu Pro Glu Glu Phe Ala Ala Tyr Leu Glu Pro
 1115 1120 1125

 Phe Lys Glu Lys Gly Glu Val Arg Arg Pro Thr Leu Ser Trp Pro
 1130 1135 1140

 Arg Glu Ile Pro Leu Val Lys Gly Gly Lys Pro Asp Val Val Gln
 1145 1150 1155

 Ile Val Arg Asn Tyr Asn Ala Tyr Leu Arg Ala Ser Asp Asp Leu
 1160 1165 1170

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Pro Lys Met Phe Ile Glu Ser Asp Pro Gly Phe Phe Ser Asn Ala
1175 1180 1185

Ile Val Glu Gly Ala Lys Lys Phe Pro Asn Thr Glu Phe Val Lys
1190 1195 1200

Val Lys Gly Leu His Phe Ser Gln Glu Asp Ala Pro Asp Glu Met
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Gly Lys Tyr Ile Lys Ser Phe Val Glu Arg Val Leu Lys Asn Glu
1220 1225 1230

Gln

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ctc ctg atg ctc ttc cac ctg gga ctc caa gct tca atc tcg gcg cgc	96
Leu Leu Met Leu Phe His Leu Gly Leu Gln Ala Ser Ile Ser Ala Arg	
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Thr	Pro	Trp	Arg	Phe	Lys	Leu	Ser	Cys	Met	Pro	Pro	Asn	Ser	Thr	Tyr	
	50					55					60					
gac	tac	ttc	ctt	ttg	cct	gct	gga	ctc	tca	aag	aat	act	tca	aat	tcg	240
Asp	Tyr	Phe	Leu	Leu	Pro	Ala	Gly	Leu	Ser	Lys	Asn	Thr	Ser	Asn	Ser	
65					70					75					80	
aat	gga	cat	tat	gag	aca	gct	gtt	gaa	cct	aag	ttt	aat	tca	agt	ggt	288
Asn	Gly	His	Tyr	Glu	Thr	Ala	Val	Glu	Pro	Lys	Phe	Asn	Ser	Ser	Gly	
				85					90					95		
act	cac	ttt	tct	aac	tta	tcc	aaa	aca	act	ttc	cac	tgt	tgc	ttt	cgg	336
Thr	His	Phe	Ser	Asn	Leu	Ser	Lys	Thr	Thr	Phe	His	Cys	Cys	Phe	Arg	
			100					105					110			
agt	gag	caa	gat	aga	aac	tgc	tcc	tta	tgt	gca	gac	aac	att	gaa	gga	384
Ser	Glu	Gln	Asp	Arg	Asn	Cys	Ser	Leu	Cys	Ala	Asp	Asn	Ile	Glu	Gly	
		115					120					125				
acg	aca	ttt	gtt	tca	aca	gta	aat	tct	tta	gtt	ttt	caa	caa	ata	gat	432
Thr	Thr	Phe	Val	Ser	Thr	Val	Asn	Ser	Leu	Val	Phe	Gln	Gln	Ile	Asp	
	130					135					140					
gca	aac	tgg	aac	ata	cag	tgc	tgg	cta	aaa	gga	gac	tta	aaa	tta	ttc	480
Ala	Asn	Trp	Asn	Ile	Gln	Cys	Trp	Leu	Lys	Gly	Asp	Leu	Lys	Leu	Phe	
145					150					155					160	
atc	tgt	tat	gtg	gag	tca	tta	ttt	aag	aat	cta	ttc	agg	aat	tat	aac	528
Ile	Cys	Tyr	Val	Glu	Ser	Leu	Phe	Lys	Asn	Leu	Phe	Arg	Asn	Tyr	Asn	
				165					170					175		
tat	aag	gtc	cat	ctt	tta	tat	gtt	ctg	cct	gaa	gtg	tta	gaa	gat	tca	576
Tyr	Lys	Val	His	Leu	Leu	Tyr	Val	Leu	Pro	Glu	Val	Leu	Glu	Asp	Ser	
			180					185					190			
cct	ctg	gtt	ccc	caa	aaa	ggc	agt	ttt	cag	atg	gtt	cac	tgc	aat	tgc	624
Pro	Leu	Val	Pro	Gln	Lys	Gly	Ser	Phe	Gln	Met	Val	His	Cys	Asn	Cys	
		195					200					205				
agt	gtt	cat	gaa	tgt	tgt	gaa	tgt	ctt	gtg	cct	gtg	cca	aca	gcc	aaa	672
Ser	Val	His	Glu	Cys	Cys	Glu	Cys	Leu	Val	Pro	Val	Pro	Thr	Ala	Lys	
	210					215					220					
ctc	aac	gac	act	ctc	ctt	atg	tgt	ttg	aaa	atc	aca	tct	ggg	gga	gta	720
Leu	Asn	Asp	Thr	Leu	Leu	Met	Cys	Leu	Lys	Ile	Thr	Ser	Gly	Gly	Val	
225					230					235					240	
att	ttc	cgg	tca	cct	cta	atg	tca	gtt	cag	ccc	ata	aat	atg	gtg	aag	768
Ile	Phe	Arg	Ser	Pro	Leu	Met	Ser	Val	Gln	Pro	Ile	Asn	Met	Val	Lys	
				245					250					255		
cct	gat	cca	cca	tta	ggg	ttg	cat	atg	gaa	atc	aca	gat	gat	ggg	aat	816
Pro	Asp	Pro	Pro	Leu	Gly	Leu	His	Met	Glu	Ile	Thr	Asp	Asp	Gly	Asn	
			260					265					270			
tta	aag	att	tct	tgg	tcc	agc	cca	cca	ttg	gta	cca	ttt	cca	ctt	caa	864
Leu	Lys	Ile	Ser	Trp	Ser	Ser	Pro	Pro	Leu	Val	Pro	Phe	Pro	Leu	Gln	
		275					280					285				

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tat Tyr	caa Gln 290	gtg Val	aaa Lys	tat Tyr	tca Ser	gag Glu 295	aat Asn	tct Ser	aca Thr	aca Thr	gtt Val 300	atc Ile	aga Arg	gaa Glu	gct Ala	912
gac Asp 305	aag Lys	att Ile	gtc Val	tca Ser	gct Ala 310	aca Thr	tcc Ser	ctg Leu	cta Leu	gta Val 315	gac Asp	agt Ser	ata Ile	ctt Leu	cct Pro 320	960
ggg Gly	tct Ser	tcg Ser	tat Tyr	gag Glu 325	gtt Val	cag Gln	gtg Val	agg Arg	ggc Gly 330	aag Lys	aga Arg	ctg Leu	gat Asp	ggc Gly 335	cca Pro	1008
gga Gly	atc Ile	tgg Trp	agt Ser 340	gac Asp	tgg Trp	agt Ser	act Thr	cct Pro 345	cgt Arg	gtc Val	ttt Phe	acc Thr	aca Thr 350	caa Gln	gat Asp	1056
gtc Val	ata Ile	tac Tyr 355	ttt Phe	cca Pro	cct Pro	aaa Lys	att Ile 360	ctg Leu	aca Thr	agt Ser	gtt Val	ggg Gly 365	tct Ser	aat Asn	gtt Val	1104
tct Ser	ttt Phe 370	cac His	tgc Cys	atc Ile	tat Tyr	aag Lys 375	aag Lys	gaa Glu	aac Asn	aag Lys	att Ile 380	gtt Val	ccc Pro	tca Ser	aaa Lys	1152
gag Glu 385	att Ile	gtt Val	tgg Trp	tgg Trp	atg Met 390	aat Asn	tta Leu	gct Ala	gag Glu	aaa Lys 395	att Ile	cct Pro	caa Gln	agc Ser	cag Gln 400	1200
tat Tyr	gat Asp	gtt Val	gtg Val	agt Ser 405	gat Asp	cat His	gtt Val	agc Ser	aaa Lys 410	gtt Val	act Thr	ttt Phe	ttc Phe	aat Asn 415	ctg Leu	1248
aat Asn	gaa Glu	acc Thr	aaa Lys 420	cct Pro	cga Arg	gga Gly	aag Lys	ttt Phe 425	acc Thr	tat Tyr	gat Asp	gca Ala	gtg Val 430	tac Tyr	tgc Cys	1296
tgc Cys	aat Asn	gaa Glu 435	cat His	gaa Glu	tgc Cys	cat His	cat His 440	cgc Arg	tat Tyr	gct Ala	gaa Glu	tta Leu 445	tat Tyr	gtg Val	att Ile	1344
gat Asp	gtc Val 450	aat Asn	atc Ile	aat Asn	atc Ile	tca Ser 455	tgt Cys	gaa Glu	act Thr	gat Asp	ggg Gly 460	tac Tyr	tta Leu	act Thr	aaa Lys	1392
atg Met 465	act Thr	tgc Cys	aga Arg	tgg Trp	tca Ser 470	acc Thr	agt Ser	aca Thr	atc Ile	cag Gln 475	tca Ser	ctt Leu	gcg Ala	gaa Glu	agc Ser 480	1440
act Thr	ttg Leu	caa Gln	ttg Leu	agg Arg 485	tat Tyr	cat His	agg Arg	agc Ser	agc Ser 490	ctt Leu	tac Tyr	tgt Cys	tct Ser	gat Asp 495	att Ile	1488
cca Pro	tct Ser	att Ile	cat His 500	ccc Pro	ata Ile	tct Ser	gag Glu	ccc Pro 505	aaa Lys	gat Asp	tgc Cys	tat Tyr	ttg Leu 510	cag Gln	agt Ser	1536
gat Asp	ggg Gly	ttt Phe 515	tat Tyr	gaa Glu	tgc Cys	att Ile	ttc Phe 520	cag Gln	cca Pro	atc Ile	ttc Phe	cta Leu 525	tta Leu	tct Ser	ggc Gly	1584
tac Tyr	aca Thr 530	atg Met	tgg Trp	att Ile	agg Arg	atc Ile 535	aat Asn	cac His	tct Ser	cta Leu	ggg Gly 540	tca Ser	ctt Leu	gac Asp	tct Ser	1632

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cca	cca	aca	tgt	gtc	ctt	cct	gat	tct	gtg	gtg	aag	cca	ctg	cct	cca	1680
Pro	Pro	Thr	Cys	Val	Leu	Pro	Asp	Ser	Val	Val	Lys	Pro	Leu	Pro	Pro	
545					550				555						560	
tcc	agt	gtg	aaa	gca	gaa	att	act	ata	aac	att	gga	tta	ttg	aaa	ata	1728
Ser	Ser	Val	Lys	Ala	Glu	Ile	Thr	Ile	Asn	Ile	Gly	Leu	Leu	Lys	Ile	
				565					570					575		
tct	tgg	gaa	aag	cca	gtc	ttt	cca	gag	aat	aac	ctt	caa	ttc	cag	att	1776
Ser	Trp	Glu	Lys	Pro	Val	Phe	Pro	Glu	Asn	Asn	Leu	Gln	Phe	Gln	Ile	
			580					585					590			
cgc	tat	ggg	tta	agt	gga	aaa	gaa	gta	caa	tgg	aag	atg	tat	gag	gtt	1824
Arg	Tyr	Gly	Leu	Ser	Gly	Lys	Glu	Val	Gln	Trp	Lys	Met	Tyr	Glu	Val	
		595					600					605				
tat	gat	gca	aaa	tca	aaa	tct	gtc	agt	ctc	cca	gtt	cca	gac	ttg	tgt	1872
Tyr	Asp	Ala	Lys	Ser	Lys	Ser	Val	Ser	Leu	Pro	Val	Pro	Asp	Leu	Cys	
	610					615					620					
gca	gtc	tat	gct	gtt	cag	gtg	cgc	tgt	aag	agg	cta	gat	gga	ctg	gga	1920
Ala	Val	Tyr	Ala	Val	Gln	Val	Arg	Cys	Lys	Arg	Leu	Asp	Gly	Leu	Gly	
625					630					635					640	
tat	tgg	agt	aat	tgg	agc	aat	cca	gcc	tac	aca	gtt	gtc	atg	gat	ata	1968
Tyr	Trp	Ser	Asn	Trp	Ser	Asn	Pro	Ala	Tyr	Thr	Val	Val	Met	Asp	Ile	
				645					650					655		
aaa	gtt	cct	atg	aga	gga	cct	gaa	ttt	tgg	aga	ata	att	aat	gga	gat	2016
Lys	Val	Pro	Met	Arg	Gly	Pro	Glu	Phe	Trp	Arg	Ile	Ile	Asn	Gly	Asp	
			660					665					670			
act	atg	aaa	aag	gag	aaa	aat	gtc	act	tta	ctt	tgg	aag	ccc	ctg	atg	2064
Thr	Met	Lys	Lys	Glu	Lys	Asn	Val	Thr	Leu	Leu	Trp	Lys	Pro	Leu	Met	
		675					680					685				
aaa	aat	gac	tca	ttg	tgc	agt	gtt	cag	aga	tat	gtg	ata	aac	cat	cat	2112
Lys	Asn	Asp	Ser	Leu	Cys	Ser	Val	Gln	Arg	Tyr	Val	Ile	Asn	His	His	
	690					695					700					
act	tcc	tgc	aat	gga	aca	tgg	tca	gaa	gat	gtg	gga	aat	cac	acg	aaa	2160
Thr	Ser	Cys	Asn	Gly	Thr	Trp	Ser	Glu	Asp	Val	Gly	Asn	His	Thr	Lys	
705				710						715					720	
ttc	act	ttc	ctg	tgg	aca	gag	caa	gca	cat	act	gtt	acg	gtt	ctg	gcc	2208
Phe	Thr	Phe	Leu	Trp	Thr	Glu	Gln	Ala	His	Thr	Val	Thr	Val	Leu	Ala	
				725					730					735		
atc	aat	tca	att	ggg	gct	tct	gtt	gca	aat	ttt	aat	tta	acc	ttt	tca	2256
Ile	Asn	Ser	Ile	Gly	Ala	Ser	Val	Ala	Asn	Phe	Asn	Leu	Thr	Phe	Ser	
			740					745					750			
tgg	cct	atg	agc	aaa	gta	aat	atc	gtg	cag	tca	ctc	agt	gct	tat	cct	2304
Trp	Pro	Met	Ser	Lys	Val	Asn	Ile	Val	Gln	Ser	Leu	Ser	Ala	Tyr	Pro	
		755					760					765				
tta	aac	agc	agt	tgt	gtg	att	gtt	tcc	tgg	ata	cta	tca	ccc	agt	gat	2352
Leu	Asn	Ser	Ser	Cys	Val	Ile	Val	Ser	Trp	Ile	Leu	Ser	Pro	Ser	Asp	
	770					775					780					
tac	aag	cta	atg	tat	ttt	att	att	gag	tgg	aaa	aat	ctt	aat	gaa	gat	2400
Tyr	Lys	Leu	Met	Tyr	Phe	Ile	Ile	Glu	Trp	Lys	Asn	Leu	Asn	Glu	Asp	

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785	790	795	800	
ggt Gly	gaa Glu	ata Ile	aaa Lys	2448
tgg Trp 805	ctt Leu	aga Arg	atc Ile	
tct Ser	tca Ser 810	tct Ser	ggt Val	
aag Lys	aag Lys	tat Tyr 815	tat Tyr	
atc Ile	cat His	gat Asp	cat His 820	2496
ttt Phe	atc Ile	ccc Pro	att Ile	
gag Glu 825	aag Lys	tac Tyr	cag Gln	
ttc Phe	agt Ser 830	ctt Leu	tac Tyr	
cca Pro	ata Ile	ttt Phe 835	atg Met	2544
gaa Glu	gga Gly	gtg Val	gga Gly 840	
aaa Lys	cca Pro	aag Lys	ata Ile	
att Ile 845	aat Asn	agt Ser	ttc Phe	
act Thr	caa Gln 850	gat Asp	gat Asp	2592
att Ile	gaa Glu	aaa Lys 855	cac His	
cag Gln	agt Ser	gat Asp	gca Ala 860	
ggt Gly	tta Leu	tat Tyr	gta Val	
att Ile 865	gtg Val	cca Pro	gta Val	2640
att Ile 870	tcc Ser	tct Ser	tcc Ser	
atc Ile	tta Leu 875	ttg Leu	ctt Leu	
gga Gly	aca Thr	tta Leu 880		
tta Leu	ata Ile	tca Ser	cac His 885	2688
caa Gln	aga Arg	atg Met	aaa Lys	
aag Lys	cta Leu 890	ttt Phe	tgg Trp	
gaa Glu	gat Asp	gtt Val 895	ccg Pro	
aac Asn	ccc Pro	aag Lys	aat Asn 900	2736
tgt Cys	tcc Ser	tgg Trp	gca Ala	
caa Gln 905	gga Gly	ctt Leu	aat Asn	
ttt Phe 910	cag Gln 910	aag Lys	aga Arg	
acg Thr	gac Asp	att Ile 915	ctg Leu	2784
gat Asp	cca Pro	ccg Pro	gtc Val 920	
gcc Ala	acc Thr	atg Met	gtg Val	
agc Ser 925	aag Lys	ggc Gly	gag Glu	
gag Glu 930	ctg Leu	gac Asp	ggc Gly	2832
gac Asp	gag Glu 940	ctg Leu	gac Asp	
gta Val 945	aac Asn	ggc Gly	cac His	2880
aag Lys	ttc Phe 950	agc Ser	gtg Val	
tcc Ser	ggc Gly	gag Glu 955	ggc Gly	
gag Glu	ggc Gly	gag Glu	ggc Gly	
gat Asp	gcc Ala 960			
acc Thr	tac Tyr	ggc Gly	aag Lys 975	2928
ctg Leu 965	acc Thr	ctg Leu	aag Lys	
atc Ile 970	tgc Cys	acc Thr	acc Thr	
ggc Gly	aag Lys	ctg Leu		
ccc Pro	gtg Val	ccc Pro	tgg Trp 980	2976
ccc Pro	acc Thr	ctc Leu	gtg Val	
acc Thr	acc Thr	ttc Phe	ggc Gly	
tac Tyr	ggc Gly	tac Tyr	ggc Gly 990	
gtg Val	cag Gln			
tgc Cys	ttc Phe 995	gcc Ala	cgc Arg	3024
tac Tyr	ccc Pro	gac Asp	cac His 1000	
atg Met	cgc Arg	cag Gln	cac His 1005	
tcc Ser	gcc Ala 1010	atg Met	ccc Pro	3069
gaa Glu	ggc Gly	tac Tyr 1015	gtc Val	
cag Gln	gag Glu	cgc Arg	acc Thr 1020	
atc Ile	ttc Phe	ttc Phe		
aag Lys	gac Asp 1025	gac Asp	ggc Gly	3114
aac Asn	tac Tyr	aag Lys 1030	acc Thr	
cgc Arg	gcc Ala	gag Glu	gtg Val 1035	
aag Lys	ttc Phe	gag Glu		
ggc Gly	gac Asp	acc Thr	ctg Gly	3159
gtg Val	aac Asn	cgc Arg	atc Gag	

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Gly	Asp	Thr	Leu	Val	Asn	Arg	Ile	Glu	Leu	Lys	Gly	Ile	Asp	Phe	
1040						1045					1050				
aag	gag	gac	ggc	aac	atc	ctg	ggg	cac	aag	ctg	gag	tac	aac	tac	3204
Lys	Glu	Asp	Gly	Asn	Ile	Leu	Gly	His	Lys	Leu	Glu	Tyr	Asn	Tyr	
1055						1060					1065				
aac	agc	cac	aac	gtc	tat	atc	atg	gcc	gac	aag	cag	aag	aac	ggc	3249
Asn	Ser	His	Asn	Val	Tyr	Ile	Met	Ala	Asp	Lys	Gln	Lys	Asn	Gly	
1070						1075					1080				
atc	aag	gtg	aac	ttc	aag	atc	cgc	cac	aac	atc	gag	gac	ggc	agc	3294
Ile	Lys	Val	Asn	Phe	Lys	Ile	Arg	His	Asn	Ile	Glu	Asp	Gly	Ser	
1085						1090					1095				
gtg	cag	ctc	gcc	gac	cac	tac	cag	cag	aac	acc	ccc	atc	ggc	gac	3339
Val	Gln	Leu	Ala	Asp	His	Tyr	Gln	Gln	Asn	Thr	Pro	Ile	Gly	Asp	
1100						1105					1110				
ggc	ccc	gtg	ctg	ctg	ccc	gac	aac	cac	tac	ctg	agc	tac	cag	tcc	3384
Gly	Pro	Val	Leu	Leu	Pro	Asp	Asn	His	Tyr	Leu	Ser	Tyr	Gln	Ser	
1115						1120					1125				
gcc	ctg	agc	aaa	gac	ccc	aac	gag	aag	cgc	gat	cac	atg	gtc	ctg	3429
Ala	Leu	Ser	Lys	Asp	Pro	Asn	Glu	Lys	Arg	Asp	His	Met	Val	Leu	
1130						1135					1140				
ctg	gag	ttc	gtg	acc	gcc	gcc	ggg	atc	act	ctc	ggc	atg	gac	gag	3474
Leu	Glu	Phe	Val	Thr	Ala	Ala	Gly	Ile	Thr	Leu	Gly	Met	Asp	Glu	
1145						1150					1155				
ctg	tac	aag	taa												3486
Leu	Tyr	Lys													
1160															

<210> 14

<211> 1161

<212> PRT

<213> Artificial Sequence

<220>

<223> OBR YFP

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<221> misc_feature

<223> OBR YFP

<400> 14

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Leu Leu Met Leu Phe His Leu Gly Leu Gln Ala Ser Ile Ser Ala Arg

20

25

30

Gln Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Thr Arg Tyr Pro Ile
35 40 45

Thr Pro Trp Arg Phe Lys Leu Ser Cys Met Pro Pro Asn Ser Thr Tyr
50 55 60

Asp Tyr Phe Leu Leu Pro Ala Gly Leu Ser Lys Asn Thr Ser Asn Ser
65 70 75 80

Asn Gly His Tyr Glu Thr Ala Val Glu Pro Lys Phe Asn Ser Ser Gly
85 90 95

Thr His Phe Ser Asn Leu Ser Lys Thr Thr Phe His Cys Cys Phe Arg
100 105 110

Ser Glu Gln Asp Arg Asn Cys Ser Leu Cys Ala Asp Asn Ile Glu Gly
115 120 125

Thr Thr Phe Val Ser Thr Val Asn Ser Leu Val Phe Gln Gln Ile Asp
130 135 140

Ala Asn Trp Asn Ile Gln Cys Trp Leu Lys Gly Asp Leu Lys Leu Phe
145 150 155 160

Ile Cys Tyr Val Glu Ser Leu Phe Lys Asn Leu Phe Arg Asn Tyr Asn
165 170 175

Tyr Lys Val His Leu Leu Tyr Val Leu Pro Glu Val Leu Glu Asp Ser
180 185 190

Pro Leu Val Pro Gln Lys Gly Ser Phe Gln Met Val His Cys Asn Cys
195 200 205

Ser Val His Glu Cys Cys Glu Cys Leu Val Pro Val Pro Thr Ala Lys
210 215 220

Leu Asn Asp Thr Leu Leu Met Cys Leu Lys Ile Thr Ser Gly Gly Val
225 230 235 240

Ile Phe Arg Ser Pro Leu Met Ser Val Gln Pro Ile Asn Met Val Lys
245 250 255

Pro Asp Pro Pro Leu Gly Leu His Met Glu Ile Thr Asp Asp Gly Asn
260 265 270

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Leu Lys Ile Ser Trp Ser Ser Pro Pro Leu Val Pro Phe Pro Leu Gln
275 280 285

Tyr Gln Val Lys Tyr Ser Glu Asn Ser Thr Thr Val Ile Arg Glu Ala
290 295 300

Asp Lys Ile Val Ser Ala Thr Ser Leu Leu Val Asp Ser Ile Leu Pro
305 310 315 320

Gly Ser Ser Tyr Glu Val Gln Val Arg Gly Lys Arg Leu Asp Gly Pro
325 330 335

Gly Ile Trp Ser Asp Trp Ser Thr Pro Arg Val Phe Thr Thr Gln Asp
340 345 350

Val Ile Tyr Phe Pro Pro Lys Ile Leu Thr Ser Val Gly Ser Asn Val
355 360 365

Ser Phe His Cys Ile Tyr Lys Lys Glu Asn Lys Ile Val Pro Ser Lys
370 375 380

Glu Ile Val Trp Trp Met Asn Leu Ala Glu Lys Ile Pro Gln Ser Gln
385 390 395 400

Tyr Asp Val Val Ser Asp His Val Ser Lys Val Thr Phe Phe Asn Leu
405 410 415

Asn Glu Thr Lys Pro Arg Gly Lys Phe Thr Tyr Asp Ala Val Tyr Cys
420 425 430

Cys Asn Glu His Glu Cys His His Arg Tyr Ala Glu Leu Tyr Val Ile
435 440 445

Asp Val Asn Ile Asn Ile Ser Cys Glu Thr Asp Gly Tyr Leu Thr Lys
450 455 460

Met Thr Cys Arg Trp Ser Thr Ser Thr Ile Gln Ser Leu Ala Glu Ser
465 470 475 480

Thr Leu Gln Leu Arg Tyr His Arg Ser Ser Leu Tyr Cys Ser Asp Ile
485 490 495

Pro Ser Ile His Pro Ile Ser Glu Pro Lys Asp Cys Tyr Leu Gln Ser
500 505 510

Asp Gly Phe Tyr Glu Cys Ile Phe Gln Pro Ile Phe Leu Leu Ser Gly
515 520 525

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Tyr Thr Met Trp Ile Arg Ile Asn His Ser Leu Gly Ser Leu Asp Ser
 530 535 540
 Pro Pro Thr Cys Val Leu Pro Asp Ser Val Val Lys Pro Leu Pro Pro
 545 550 555 560
 Ser Ser Val Lys Ala Glu Ile Thr Ile Asn Ile Gly Leu Leu Lys Ile
 565 570 575
 Ser Trp Glu Lys Pro Val Phe Pro Glu Asn Asn Leu Gln Phe Gln Ile
 580 585 590
 Arg Tyr Gly Leu Ser Gly Lys Glu Val Gln Trp Lys Met Tyr Glu Val
 595 600 605
 Tyr Asp Ala Lys Ser Lys Ser Val Ser Leu Pro Val Pro Asp Leu Cys
 610 615 620
 Ala Val Tyr Ala Val Gln Val Arg Cys Lys Arg Leu Asp Gly Leu Gly
 625 630 635 640
 Tyr Trp Ser Asn Trp Ser Asn Pro Ala Tyr Thr Val Val Met Asp Ile
 645 650 655
 Lys Val Pro Met Arg Gly Pro Glu Phe Trp Arg Ile Ile Asn Gly Asp
 660 665 670
 Thr Met Lys Lys Glu Lys Asn Val Thr Leu Leu Trp Lys Pro Leu Met
 675 680 685
 Lys Asn Asp Ser Leu Cys Ser Val Gln Arg Tyr Val Ile Asn His His
 690 695 700
 Thr Ser Cys Asn Gly Thr Trp Ser Glu Asp Val Gly Asn His Thr Lys
 705 710 715 720
 Phe Thr Phe Leu Trp Thr Glu Gln Ala His Thr Val Thr Val Leu Ala
 725 730 735
 Ile Asn Ser Ile Gly Ala Ser Val Ala Asn Phe Asn Leu Thr Phe Ser
 740 745 750
 Trp Pro Met Ser Lys Val Asn Ile Val Gln Ser Leu Ser Ala Tyr Pro
 755 760 765
 Leu Asn Ser Ser Cys Val Ile Val Ser Trp Ile Leu Ser Pro Ser Asp
 770 775 780

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Tyr Lys Leu Met Tyr Phe Ile Ile Glu Trp Lys Asn Leu Asn Glu Asp
 785 790 795 800
 Gly Glu Ile Lys Trp Leu Arg Ile Ser Ser Ser Val Lys Lys Tyr Tyr
 805 810 815
 Ile His Asp His Phe Ile Pro Ile Glu Lys Tyr Gln Phe Ser Leu Tyr
 820 825 830
 Pro Ile Phe Met Glu Gly Val Gly Lys Pro Lys Ile Ile Asn Ser Phe
 835 840 845
 Thr Gln Asp Asp Ile Glu Lys His Gln Ser Asp Ala Gly Leu Tyr Val
 850 855 860
 Ile Val Pro Val Ile Ile Ser Ser Ser Ile Leu Leu Leu Gly Thr Leu
 865 870 875 880
 Leu Ile Ser His Gln Arg Met Lys Lys Leu Phe Trp Glu Asp Val Pro
 885 890 895
 Asn Pro Lys Asn Cys Ser Trp Ala Gln Gly Leu Asn Phe Gln Lys Arg
 900 905 910
 Thr Asp Ile Leu Asp Pro Pro Val Ala Thr Met Val Ser Lys Gly Glu
 915 920 925
 Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp
 930 935 940
 Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala
 945 950 955 960
 Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu
 965 970 975
 Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe Gly Tyr Gly Val Gln
 980 985 990
 Cys Phe Ala Arg Tyr Pro Asp His Met Arg Gln His Asp Phe Phe Lys
 995 1000 1005
 Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe
 1010 1015 1020
 Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu

1025

Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe
1040 1045 1050

Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr
1055 1060 1065

Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly
1070 1075 1080

Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser
1085 1090 1095

Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp
1100 1105 1110

Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser
1115 1120 1125

Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu
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Leu Glu Phe Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu
1145 1150 1155

Leu Tyr Lys
1160

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FRAV20030005 US NP Sequence Listing.txt

gga ctg atg ttt ttg atg ctt gga tgt gcc ctt cca ata tac aac aaa Gly Leu Met Phe Leu Met Leu Gly Cys Ala Leu Pro Ile Tyr Asn Lys 20 25 30	96
tac tgg ccc ctc ttt gtt cta ttt ttt tac atc ctt tca cct att cca Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser Pro Ile Pro 35 40 45	144
tac tgc ata gca aga aga tta gtg gat gat aca gat gct atg agt aac Tyr Cys Ile Ala Arg Arg Leu Val Asp Asp Thr Asp Ala Met Ser Asn 50 55 60	192
gct tgt aag gaa ctt gcc atc ttt ctt aca acg ggc att gtc gtg tca Ala Cys Lys Glu Leu Ala Ile Phe Leu Thr Thr Gly Ile Val Val Ser 65 70 75 80	240
gct ttt gga ctc cct att gta ttt gcc aga gca cat ctg att gag tgg Ala Phe Gly Leu Pro Ile Val Phe Ala Arg Ala His Leu Ile Glu Trp 85 90 95	288
gga gct tgt gca ctt gtt ctc aca gga aac aca gtc atc ttt gca act Gly Ala Cys Ala Leu Val Leu Thr Gly Asn Thr Val Ile Phe Ala Thr 100 105 110	336
ata cta ggc ttt ttc ttg gtc ttt gga agc aat gac gac ttc agc tgg Ile Leu Gly Phe Phe Leu Val Phe Gly Ser Asn Asp Asp Phe Ser Trp 115 120 125	384
cag cag tgg tga Gln Gln Trp 130	396

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Met Ala Gly Ile Lys Ala Leu Ile Ser Leu Ser Phe Gly Gly Ala Ile 1 5 10 15
Gly Leu Met Phe Leu Met Leu Gly Cys Ala Leu Pro Ile Tyr Asn Lys 20 25 30
Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser Pro Ile Pro 35 40 45
Tyr Cys Ile Ala Arg Arg Leu Val Asp Asp Thr Asp Ala Met Ser Asn 50 55 60
Ala Cys Lys Glu Leu Ala Ile Phe Leu Thr Thr Gly Ile Val Val Ser

65 70 75 80
 Ala Phe Gly Leu Pro Ile Val Phe Ala Arg Ala His Leu Ile Glu Trp
 85 90 95
 Gly Ala Cys Ala Leu Val Leu Thr Gly Asn Thr Val Ile Phe Ala Thr
 100 105 110
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 Gln Gln Trp
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 gga ctg atg ttt ttg atg ctt gga tgt gcc ctt cca ata tac aac aaa 96
 Gly Leu Met Phe Leu Met Leu Gly Cys Ala Leu Pro Ile Tyr Asn Lys
 20 25 30
 tac tgg ccc ctc ttt gtt cta ttt ttt tac atc ctt tca cct att cca 144
 Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser Pro Ile Pro
 35 40 45
 tac tgc ata gca aga aga tta gtg gat gat aca gat gct atg agt aac 192
 Tyr Cys Ile Ala Arg Arg Leu Val Asp Asp Thr Asp Ala Met Ser Asn
 50 55 60

FRAV20030005 US NP Sequence Listing.txt

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Ala	Cys	Lys	Glu	Leu	Ala	Ile	Phe	Leu	Thr	Thr	Gly	Ile	Val	Val	Ser	
65					70					75					80	
gct	ttt	gga	ctc	cct	att	gta	ttt	gcc	aga	gca	cat	ctg	att	gag	tgg	288
Ala	Phe	Gly	Leu	Pro	Ile	Val	Phe	Ala	Arg	Ala	His	Leu	Ile	Glu	Trp	
				85					90					95		
gga	gct	tgt	gca	ctt	ggt	ctc	aca	gga	aac	aca	gtc	atc	ttt	gca	act	336
Gly	Ala	Cys	Ala	Leu	Val	Leu	Thr	Gly	Asn	Thr	Val	Ile	Phe	Ala	Thr	
			100					105					110			
ata	cta	ggc	ttt	ttc	ttg	gtc	ttt	gga	agc	aat	gac	gac	ttc	agc	tgg	384
Ile	Leu	Gly	Phe	Phe	Leu	Val	Phe	Gly	Ser	Asn	Asp	Asp	Phe	Ser	Trp	
		115					120					125				
cag	cag	tgg	cga	ccg	gtg	gat	cca	ccg	gct	aga	gcc	acc	atg	acc	agc	432
Gln	Gln	Trp	Arg	Pro	Val	Asp	Pro	Pro	Ala	Arg	Ala	Thr	Met	Thr	Ser	
	130					135					140					
aag	gtg	tac	gac	ccc	gag	cag	agg	aag	agg	atg	atc	acc	ggc	ccc	cag	480
Lys	Val	Tyr	Asp	Pro	Glu	Gln	Arg	Lys	Arg	Met	Ile	Thr	Gly	Pro	Gln	
145					150					155					160	
tgg	tgg	gcc	agg	tgc	aag	cag	atg	aac	gtg	ctg	gac	agc	ttc	atc	aac	528
Trp	Trp	Ala	Arg	Cys	Lys	Gln	Met	Asn	Val	Leu	Asp	Ser	Phe	Ile	Asn	
				165					170					175		
tac	tac	gac	agc	gag	aag	cac	gcc	gag	aac	gcc	gtg	atc	ttc	ctg	cac	576
Tyr	Tyr	Asp	Ser	Glu	Lys	His	Ala	Glu	Asn	Ala	Val	Ile	Phe	Leu	His	
			180					185					190			
ggc	aac	gcc	gct	agc	agc	tac	ctg	tgg	agg	cac	gtg	gtg	ccc	cac	atc	624
Gly	Asn	Ala	Ala	Ser	Ser	Tyr	Leu	Trp	Arg	His	Val	Val	Pro	His	Ile	
		195					200					205				
gag	ccc	gtg	gcc	agg	tgc	atc	atc	ccc	gat	ctg	atc	ggc	atg	ggc	aag	672
Glu	Pro	Val	Ala	Arg	Cys	Ile	Ile	Pro	Asp	Leu	Ile	Gly	Met	Gly	Lys	
	210					215					220					
agc	ggc	aag	agc	ggc	aac	ggc	agc	tac	agg	ctg	ctg	gac	cac	tac	aag	720
Ser	Gly	Lys	Ser	Gly	Asn	Gly	Ser	Tyr	Arg	Leu	Leu	Asp	His	Tyr	Lys	
225					230					235					240	
tac	ctg	acc	gcc	tgg	ttc	gag	ctc	ctg	aac	ctg	ccc	aag	aag	atc	atc	768
Tyr	Leu	Thr	Ala	Trp	Phe	Glu	Leu	Leu	Asn	Leu	Pro	Lys	Lys	Ile	Ile	
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ttc	gtg	ggc	cac	gac	tgg	ggc	gcc	tgc	ctg	gcc	ttc	cac	tac	agc	tac	816
Phe	Val	Gly	His	Asp	Trp	Gly	Ala	Cys	Leu	Ala	Phe	His	Tyr	Ser	Tyr	
			260					265					270			
gag	cac	cag	gac	aag	atc	aag	gcc	atc	gtg	cac	gcc	gag	agc	gtg	gtg	864
Glu	His	Gln	Asp	Lys	Ile	Lys	Ala	Ile	Val	His	Ala	Glu	Ser	Val	Val	
		275					280					285				
gac	gtg	atc	gag	agc	tgg	gac	gag	tgg	cca	gac	atc	gag	gag	gac	atc	912
Asp	Val	Ile	Glu	Ser	Trp	Asp	Glu	Trp	Pro	Asp	Ile	Glu	Glu	Asp	Ile	
	290					295					300					
gcc	ctg	atc	aag	agc	gag	gag	ggc	gag	aag	atg	gtg	ctg	gag	aac	aac	960
Ala	Leu	Ile	Lys	Ser	Glu	Glu	Gly	Glu	Lys	Met	Val	Leu	Glu	Asn	Asn	

FRAV20030005 US NP Sequence Listing.txt

305	310	315	320	
ttc ttc gtg gag acc atg ctg ccc agc aag atc atg aga aag ctg gag				1008
Phe Phe Val Glu Thr Met Leu Pro Ser Lys Ile Met Arg Lys Leu Glu	325	330	335	
ccc gag gag ttc gcc gcc tac ctg gag ccc ttc aag gag aag ggc gag				1056
Pro Glu Glu Phe Ala Ala Tyr Leu Glu Pro Phe Lys Glu Lys Gly Glu	340	345	350	
gtg aga aga ccc acc ctg agc tgg ccc aga gag atc ccc ctg gtg aag				1104
Val Arg Arg Pro Thr Leu Ser Trp Pro Arg Glu Ile Pro Leu Val Lys	355	360	365	
ggc ggc aag ccc gac gtg gtg cag atc gtg aga aac tac aac gcc tac				1152
Gly Gly Lys Pro Asp Val Val Gln Ile Val Arg Asn Tyr Asn Ala Tyr	370	375	380	
ctg aga gcc agc gac gac ctg ccc aag atg ttc atc gag agc gac ccc				1200
Leu Arg Ala Ser Asp Asp Leu Pro Lys Met Phe Ile Glu Ser Asp Pro	385	390	400	
ggc ttc ttc agc aac gcc atc gtg gag ggc gcc aag aag ttc ccc aac				1248
Gly Phe Phe Ser Asn Ala Ile Val Glu Gly Ala Lys Lys Phe Pro Asn	405	410	415	
acc gag ttc gtg aag gtg aag ggc ctg cac ttc agc cag gag gac gcc				1296
Thr Glu Phe Val Lys Val Lys Gly Leu His Phe Ser Gln Glu Asp Ala	420	425	430	
ccc gac gag atg ggc aag tac atc aag agc ttc gtg gag aga gtg ctg				1344
Pro Asp Glu Met Gly Lys Tyr Ile Lys Ser Phe Val Glu Arg Val Leu	435	440	445	
aag aac gag cag taa				1359
Lys Asn Glu Gln	450			

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20 25 30	

FRAV20030005 US NP Sequence Listing.txt

Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser Pro Ile Pro
35 40 45

Tyr Cys Ile Ala Arg Arg Leu Val Asp Asp Thr Asp Ala Met Ser Asn
50 55 60

Ala Cys Lys Glu Leu Ala Ile Phe Leu Thr Thr Gly Ile Val Val Ser
65 70 75 80

Ala Phe Gly Leu Pro Ile Val Phe Ala Arg Ala His Leu Ile Glu Trp
85 90 95

Gly Ala Cys Ala Leu Val Leu Thr Gly Asn Thr Val Ile Phe Ala Thr
100 105 110

Ile Leu Gly Phe Phe Leu Val Phe Gly Ser Asn Asp Asp Phe Ser Trp
115 120 125

Gln Gln Trp Arg Pro Val Asp Pro Pro Ala Arg Ala Thr Met Thr Ser
130 135 140

Lys Val Tyr Asp Pro Glu Gln Arg Lys Arg Met Ile Thr Gly Pro Gln
145 150 155 160

Trp Trp Ala Arg Cys Lys Gln Met Asn Val Leu Asp Ser Phe Ile Asn
165 170 175

Tyr Tyr Asp Ser Glu Lys His Ala Glu Asn Ala Val Ile Phe Leu His
180 185 190

Gly Asn Ala Ala Ser Ser Tyr Leu Trp Arg His Val Val Pro His Ile
195 200 205

Glu Pro Val Ala Arg Cys Ile Ile Pro Asp Leu Ile Gly Met Gly Lys
210 215 220

Ser Gly Lys Ser Gly Asn Gly Ser Tyr Arg Leu Leu Asp His Tyr Lys
225 230 235 240

Tyr Leu Thr Ala Trp Phe Glu Leu Leu Asn Leu Pro Lys Lys Ile Ile
245 250 255

Phe Val Gly His Asp Trp Gly Ala Cys Leu Ala Phe His Tyr Ser Tyr
260 265 270

Glu His Gln Asp Lys Ile Lys Ala Ile Val His Ala Glu Ser Val Val

FRAV20030005 US NP Sequence Listing.txt

275

280

285

Asp Val Ile Glu Ser Trp Asp Glu Trp Pro Asp Ile Glu Glu Asp Ile
290 295 300

Ala Leu Ile Lys Ser Glu Glu Gly Glu Lys Met Val Leu Glu Asn Asn
305 310 315 320

Phe Phe Val Glu Thr Met Leu Pro Ser Lys Ile Met Arg Lys Leu Glu
325 330 335

Pro Glu Glu Phe Ala Ala Tyr Leu Glu Pro Phe Lys Glu Lys Gly Glu
340 345 350

Val Arg Arg Pro Thr Leu Ser Trp Pro Arg Glu Ile Pro Leu Val Lys
355 360 365

Gly Gly Lys Pro Asp Val Val Gln Ile Val Arg Asn Tyr Asn Ala Tyr
370 375 380

Leu Arg Ala Ser Asp Asp Leu Pro Lys Met Phe Ile Glu Ser Asp Pro
385 390 400

Gly Phe Phe Ser Asn Ala Ile Val Glu Gly Ala Lys Lys Phe Pro Asn
405 410 415

Thr Glu Phe Val Lys Val Lys Gly Leu His Phe Ser Gln Glu Asp Ala
420 425 430

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gga ctg atg ttt ttg atg ctt gga tgt gcc ctt cca ata tac aac aaa	96
Gly Leu Met Phe Leu Met Leu Gly Cys Ala Leu Pro Ile Tyr Asn Lys	
20 25 30	
tac tgg ccc ctc ttt gtt cta ttt ttt tac atc ctt tca cct att cca	144
Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser Pro Ile Pro	
35 40 45	
tac tgc ata gca aga aga tta gtg gat gat aca gat gct atg agt aac	192
Tyr Cys Ile Ala Arg Arg Leu Val Asp Asp Thr Asp Ala Met Ser Asn	
50 55 60	
gct tgt aag gaa ctt gcc atc ttt ctt aca acg ggc att gtc gtg tca	240
Ala Cys Lys Glu Leu Ala Ile Phe Leu Thr Thr Gly Ile Val Val Ser	
65 70 75 80	
gct ttt gga ctc cct att gta ttt gcc aga gca cat ctg att gag tgg	288
Ala Phe Gly Leu Pro Ile Val Phe Ala Arg Ala His Leu Ile Glu Trp	
85 90 95	
gga gct tgt gca ctt gtt ctc aca gga aac aca gtc atc ttt gca act	336
Gly Ala Cys Ala Leu Val Leu Thr Gly Asn Thr Val Ile Phe Ala Thr	
100 105 110	
ata cta ggc ttt ttc ttg gtc ttt gga agc aat gac gac ttc agc tgg	384
Ile Leu Gly Phe Phe Leu Val Phe Gly Ser Asn Asp Asp Phe Ser Trp	
115 120 125	
cag cag tgg cga ccg gtg gat cca ccg gtc gcc acc atg gtg agc aag	432
Gln Gln Trp Arg Pro Val Asp Pro Pro Val Ala Thr Met Val Ser Lys	
130 135 140	
ggc gag gag ctg ttc acc ggg gtg gtg ccc atc ctg gtc gag ctg gac	480
Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp	
145 150 155 160	
ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc gag ggc gag ggc	528
Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly	
165 170 175	
gat gcc acc tac ggc aag ctg acc ctg aag ttc atc tgc acc acc ggc	576
Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly	

FRAV20030005 US NP Sequence Listing.txt

180	185	190		
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gtg cag tgc ttc gcc cgc tac ccc gac cac atg cgc cag cac gac ttc Val Gln Cys Phe Ala Arg Tyr Pro Asp His Met Arg Gln His Asp Phe	210	215	220	672
ttc aag tcc gcc atg ccc gaa ggc tac gtc cag gag cgc acc atc ttc Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe	225	230	235	720
ttc aag gac gac ggc aac tac aag acc cgc gcc gag gtg aag ttc gag Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu	245	250	255	768
ggc gac acc ctg gtg aac cgc atc gag ctg aag ggc atc gac ttc aag Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys	260	265	270	816
gag gac ggc aac atc ctg ggg cac aag ctg gag tac aac tac aac agc Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser	275	280	285	864
cac aac gtc tat atc atg gcc gac aag cag aag aac ggc atc aag gtg His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Val	290	295	300	912
aac ttc aag atc cgc cac aac atc gag gac ggc agc gtg cag ctc gcc Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala	305	310	315	960
gac cac tac cag cag aac acc ccc atc ggc gac ggc ccc gtg ctg ctg Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu	325	330	335	1008
ccc gac aac cac tac ctg agc tac cag tcc gcc ctg agc aaa gac ccc Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser Ala Leu Ser Lys Asp Pro	340	345	350	1056
aac gag aag cgc gat cac atg gtc ctg ctg gag ttc gtg acc gcc gcc Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala Ala	355	360	365	1104
ggg atc act ctc ggc atg gac gag ctg tac aag taa Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys	370	375		1140

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20 25 30

Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser Pro Ile Pro
35 40 45

Tyr Cys Ile Ala Arg Arg Leu Val Asp Asp Thr Asp Ala Met Ser Asn
50 55 60

Ala Cys Lys Glu Leu Ala Ile Phe Leu Thr Thr Gly Ile Val Val Ser
65 70 75 80

Ala Phe Gly Leu Pro Ile Val Phe Ala Arg Ala His Leu Ile Glu Trp
85 90 95

Gly Ala Cys Ala Leu Val Leu Thr Gly Asn Thr Val Ile Phe Ala Thr
100 105 110

Ile Leu Gly Phe Phe Leu Val Phe Gly Ser Asn Asp Asp Phe Ser Trp
115 120 125

Gln Gln Trp Arg Pro Val Asp Pro Pro Val Ala Thr Met Val Ser Lys
130 135 140

Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp
145 150 155 160

Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly
165 170 175

Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly
180 185 190

Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe Gly Tyr Gly
195 200 205

Val Gln Cys Phe Ala Arg Tyr Pro Asp His Met Arg Gln His Asp Phe
Page 50

210

Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe
225 230 235 240

Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu
245 250 255

Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys
260 265 270

Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser
275 280 285

His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Val
290 295 300

Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala
305 310 315 320

Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu
325 330 335

Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser Ala Leu Ser Lys Asp Pro
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Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala Ala
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Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys
370 375

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actgactttt cttatgctgg gatgtgcctt agaggattat ggcgtttact ggcccttatt 180
cgtcctgatt ttccacgcca tctcccccat ccccatcttc attgccaaaa gagtcaccta 240
tgactcagat gcaaccagta gtgcctgtcg ggaactggca tatttcttca ctactggaat 300

FRAV20030005 US NP Sequence Listing.txt

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ccttatatattt ggaagaggag atgatttttag ctgggagcag tggtagcact ttattctgat	480
tacagtgcac tgaatttcct agaactcata ctatctgtat acatgtgcac atgcggcatt	540
ttactatgaa atttaatatg ctgggttttt taataccttt atatatcatg ttcactttaa	600
gaaagacttc ataagtagga gatgagtttt attctcagca aatagacctg tcaaatttag	660
attatgttac tcaaattatg ttacttgttt ggctgttcat gtagtcacgg tgctctcaga	720
aaatatatta acgcagtctt gtaggcagct gccaccttat gcagtgcac gaaacctttt	780
gcttggggat gtgcttggag aggcagataa cgctgaagca ggcctctcat gaccaggaa	840
ggccgggggtg gatccctctt tgtgtttag tccatgctat taaaagtgtg gccacagac	900
caagagcctc aacatttcct agagccttat tagaaatgca gaatctgaag cccactctg	960
gaccaggac attttgatga gatccaaagg agttgtatgc acatgaaagt ttgagaagca	1020
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taacctctct ggggtgttacc tgctcatttg tttta	1114

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<223> AS06

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20

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